GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: September 1, 2004, 17:47:11 ; Search time 127 Seconds
(without alignments)
1208.057 Million cell updates/sec

Title: US-09-759-207-2
Perfect score: 2842
Sequence: 1 MLLRSKPALPPPLMLLLLGP.....LPAFSYSFFVIRNAKVAACI 543

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 75 summaries

Database : A_Geneseq_29Jan04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	2842	100.0	543	2	AAY02345	Aay02345 A human h
2	2842	100.0	543	3	AAY57590	Aay57590 Human hep
3	2842	100.0	543	3	AAB08849	Aab08849 Amino aci
4	2842	100.0	543	3	AAY52990	Aay52990 Human hep
5	2842	100.0	543	4	AAY97635	Aay97635 Human hep
6	2842	100.0	543	5	ABB07813	Abb07813 Human hep
7	2842	100.0	592	2	AAY02346	Aay02346 A human h
8	2842	100.0	592	3	AAB08850	Aab08850 Amino aci
9	2838	99.9	543	2	AAY17082	Aay17082 Human hep
10	2838	99.9	543	4	AAB86206	Aab86206 Human hep
11	2838	99.9	543	7	ADD18950	Add18950 Human dis
12	2838	99.9	588	2	AAY30124	Aay30124 A human p
13	2826	99.4	543	4	AAB88361	Aab88361 Human mem
14	2817	99.1	545	6	ABP56822	Abp56822 Human hep
15	2817	99.1	545	7	ADE16012	Ade16012 G-coupled
16	2764	97.3	530	2	AAY34173	Aay34173 Human pre
17	2737	96.3	532	2	AAY17083	Aay17083 Seq ID No
18	2673.5	94.1	527	5	ABB07815	Abb07815 Chicken s
19	2146	75.5	535	3	AAB08851	Aab08851 A murine
20	2146	75.5	535	5	ABB07811	Abb07811 Mouse hep
21	2123	74.7	536	5	ABB07812	Abb07812 Rat hepar
22	1645.5	57.9	523	5	ABB07814	Abb07814 Chicken h
23	1614	56.8	380	2	AAY17085	Aay17085 Rat hepar
24	1602	56.4	380	2	AAY17084	Aay17084 Mouse hep
25	1154.5	40.6	592	4	AAY97632	Aay97632 Human hep
26	1154.5	40.6	592	4	AAU07424	Aau07424 Human hep
27	1148.5	40.4	592	4	AAB81062	Aab81062 Human Hep
28	1147.5	40.4	592	4	AAB85215	Aab85215 Heparanas
29	1142.5	40.2	582	5	AAE18326	Aae18326 Human hep
30	1112.5	39.1	538	4	AAY97633	Aay97633 Human hep
31	1106.5	38.9	528	5	AAE18327	Aae18327 Human hep
32	936.5	33.0	534	4	AAB85216	Aab85216 Heparanas
33	936.5	33.0	534	5	ABP69310	Abp69310 Human pol
34	936.5	33.0	534	5	AAM50337	Aam50337 Human pre
35	927.5	32.6	492	4	AAB84664	Aab84664 Amino aci
36	897.5	31.6	480	4	AAY97634	Aay97634 Human hep
37	897.5	31.6	480	4	AAU07418	Aau07418 Novel hum
38	897.5	31.6	480	4	AAB85217	Aab85217 Heparanas
39	892.5	31.4	470	5	AAE18328	Aae18328 Human hep
40	891.5	31.4	439	4	AAU07423	Aau07423 Human hep
41	788	27.7	331	5	AAM50383	Aam50383 Human hep
42	663	23.3	488	4	AAB31469	Aab31469 Amino aci
43	645	22.7	488	4	AAB31470	Aab31470 Amino aci
44	642	22.6	488	4	AAB31472	Aab31472 Amino aci
45	622	21.9	488	4	AAB31471	Aab31471 Amino aci
46	528.5	18.6	214	4	AAM99905	Aam99905 Human exc
47	528.5	18.6	214	4	AAM43704	Aam43704 Human bla
48	338.5	11.9	156	4	AAG65963	Aag65963 Human hep
49	277.5	9.8	256	3	AAG13479	Aag13479 Arabidops
50	261	9.2	262	4	AAM24147	Aam24147 Human EST
51	235	8.3	50	5	AAM50385	Aam50385 Mouse hep
52	218	7.7	112	4	AAU07425	Aau07425 Human hep
53	206	7.2	38	2	AAY34186	Aay34186 Human pre
54	178	6.3	91	5	AAM50384	Aam50384 Rat hepar
55	173.5	6.1	115	4	AAB85218	Aab85218 Mouse hep
56	160	5.6	935	4	ABB69219	Abb69219 Drosophil
57	159	5.6	32	2	AAY34175	Aay34175 Human pre
58	152.5	5.4	253	3	AAG43712	Aag43712 Arabidops
59	152.5	5.4	257	3	AAG43711	Aag43711 Arabidops
60	152.5	5.4	279	3	AAG43710	Aag43710 Arabidops
61	144	5.1	28	2	AAY34177	Aay34177 Human pre
62	139.5	4.9	98	5	ABP10273	Abp10273 Human ORF
63	136.5	4.8	225	3	AAG13478	Aag13478 Arabidops
64	136.5	4.8	247	3	AAG13477	Aag13477 Arabidops
65	135.5	4.8	137	4	AAG65961	Aag65961 Human hep
66	135.5	4.8	159	4	AAG65964	Aag65964 Human hep
67	123	4.3	24	2	AAY34189	Aay34189 Human pre
68	121.5	4.3	396	2	AAW23327	Aaw23327 Meripilus
69	115.5	4.1	29	6	ABP96031	Abp96031 Human hep
70	113.5	4.0	617	2	AAR42391	Aar42391 Chicago 2
71	111.5	3.9	722	6	ABU27630	Abu27630 Protein e
72	111	3.9	21	2	AAY34178	Aay34178 Human pre
73	111	3.9	444	2	AAR22144	Aar22144 GST:NANBV
74	111	3.9	445	2	AAR22143	Aar22143 GST:NANBV
75	110	3.9	30	6	ABP96032	Abp96032 Human hep

ALIGNMENTS

RESULT 1
AAY02345
ID AAY02345 standard; protein; 543 AA.
XX
AC AAY02345;
XX
DT 09-JUL-1999 (first entry)
XX
DE A human heparanase protein.
XX
KW Heparanase; hp; modulator; heparin-binding growth factor;
KW cellular response; cytokine; cell interaction; plasma lipoprotein;
KW cellular susceptibility; infection; disintegration;
KW neurodegenerative plaque; wound healing; angiogenesis; restenosis;
KW athersclerosis; inflammation; neurodegenerative disease; neutralise;
KW plasma heparin; micrometastasis; autoimmune lesion; renal failure.
XX
OS Homo sapiens.

```
XX
PN   WO9911798-A1.
XX
PD   11-MAR-1999.
XX
PF   31-AUG-1998;   98WO-US017954.
XX
PR   02-SEP-1997;   97US-00922170.
PR   02-JUL-1998;   98US-00109386.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA   (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA   (FRIE/) FRIEDMAN M M.
XX
PI   Pecker I,  Vlodavsky I,  Feinstein E;
XX
DR   WPI; 1999-302255/25.
DR   N-PSDB; AAX35648.
XX
PT   New human polynucleotide useful for treating angiogenesis, restenosis,
PT   and inflammation.
XX
PS   Claim 6; Fig 1; 63pp; English.
XX
CC   The specification describes a polypeptide having heparanase (hp)
CC   activity. The recombinant protein is used as a modulator of heparin-
CC   binding growth factors, cellular responses to heparin-binding growth
CC   factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoal and bacterial infections or
CC   disintegration of neurodegenerative plagues. Heparanase may be useful for
CC   conditions such as wound healing, angiogenesis, restenosis,
CC   athersclerosis, inflammation, neurodegenerative diseases, and viral
CC   infections. Mammalian heparanase can be used to neutralize plasma
CC   heparin, and anti-heparanase antibodies may be applied for
CC   immunodetection and diagnosis of micrometastases, autoimmune lesions, and
CC   renal failure in biopsy specimens, plasma samples, and body fluids. The
CC   present sequence represents human heparanase
XX
SQ   Sequence 543 AA;

  Query Match             100.0%;  Score 2842;  DB 2;  Length 543;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQADVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQADVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543


RESULT 2
AAY57590
ID   AAY57590 standard; protein; 543 AA.
XX
AC   AAY57590;
XX
DT   02-MAR-2000  (first entry)
XX
DE   Human heparanase.
XX
KW   Human; heparanase; hpa; genetic modification; expression; anticancer;
KW   angiogenesis; anti-angiogenic; antiproliferative; antiviral; antitumour;
KW   anti-atherosclerotic; anti-inflammatory; antineurodegeneration;
KW   heparan sulphate; heparin-binding growth factor; tumour angiogenesis;
KW   metastasis; wound healing; restenosis; atherosclerosis; inflammation;
KW   neurodegeneration; viral infection; cystic fibrosis; cancer; diagnosis;
KW   micrometastasis; autoimmune lesion; kidney failure.
XX
OS   Homo sapiens.
XX
PN   WO9957244-A1.
XX
PD   11-NOV-1999.
XX
PF   29-APR-1999;   99WO-US009256.
XX
PR   01-MAY-1998;   98US-00071618.
PR   02-MAR-1999;   99US-00260038.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA   (FRIE/) FRIEDMAN M M.
XX
PI   Ben-Artzi H,  Ayal-Hershkovitz M,  Yacoby-Zeevi O,  Pecker I;
PI   Peleg Y,  Shlomi Y;
XX
DR   WPI; 2000-062144/05.
DR   N-PSDB; AAZ39195.
XX
PT   Engineered cells that express recombinant heparanase, useful
PT   therapeutically, e.g. for treating angiogenesis and to screen for
PT   specific inhibitors, potential anticancer agents.
XX
PS   Claim 3; Page 107-109; 118pp; English.
XX
CC   The present invention describes genetically modified cells (A) containing
CC   a polynucleotide (I) that encodes a polypeptide with heparanase activity,
CC   and express recombinant heparanase (II). Heparanase cleaves heparan
CC   sulphate (HS) at specific intrachain sites, resulting in release of
CC   heparin-binding growth factors, enzymes and proteins that are sequestered
CC   by HS in basement membranes, extracellular matrix or cell surfaces. It
CC   may also be implicated in tumour angiogenesis and metastases. (II) is
CC   potentially useful in wound healing and for treating angiogenesis,
CC   restenosis, atherosclerosis, inflammation, neurodegeneration, viral
CC   infection and cystic fibrosis. It can also be used to neutralise heparin
CC   (an alternative to protamine) and to screen for specific inhibitors
CC   (potentially useful for treating cancer and metastases). Antibodies
CC   raised against (II) are used for immunodetection and diagnosis of
CC   micrometastases, autoimmune lesions and kidney failure. (A) provide (II)
CC   in large quantities, in a form that is homogeneously processed and
CC   activated/neutralised by a dedicated protease. The present sequence
CC   represents human heparanase
```

XX
SQ Sequence 543 AA;

Query Match 100.0%; Score 2842; DB 3; Length 543;
Best Local Similarity 100.0%; Pred. No. 3.8e-273;
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543
```

RESULT 3
AAB08849
ID AAB08849 standard; protein; 543 AA.
XX
AC AAB08849;
XX
DT 15-JAN-2001 (first entry)
XX
DE Amino acid sequence of a human heparanase polypeptide.
XX
KW Human; heparanase; gene therapy; tumour; inflammation; autoimmunity;
KW heparin-binding growth factor; cytokine; neurodegenerative plaque;
KW wound healing; infection; burn; angiogenesis; restenosis;
KW atherosclerosis; inflammation; neurodegenerative disease;
KW Gerstmann-Straussler Syndrome; Creutzfeldt-Jakob disease.
XX
OS Homo sapiens.
XX
PN WO200052178-A1.
XX
PD 08-SEP-2000.
XX
PF 14-FEB-2000; 2000WO-US003542.
XX
PR 01-MAR-1999; 99US-00258892.
XX
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA (FRIE/) FRIEDMAN M M.
XX
PI Pecker I, Vlodavsky I, Feinstein E;
XX
DR WPI; 2000-579289/54.
DR N-PSDB; AAA75051.
XX
PT New polynucleotides encoding a polypeptide having heparanase activity,
PT useful in wound healing and in gene therapy, particularly in treating
PT tumor, inflammation, autoimmunity, neurodegenerative diseases.
XX
PS Claim 22; Fig 1; 152pp; English.
XX
CC The present sequence represents a human protein with heparanase catalytic
CC activity. The heparanase (hpa) polynucleotide is useful in gene therapy,
CC particularly in treating tumour, inflammation or autoimmunity.
CC Particularly, the polynucleotide is useful in modulating the
CC bioavailability of heparin-binding growth factors, cellular responses to
CC heparin-binding growth factors (e.g. bFGF) and cytokines (e.g.
CC interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular
CC susceptibility to certain viral and some bacterial and protozoa
CC infections, or disintegration of neurodegenerative plaques. The
CC polynucleotide is also useful in wound healing (e.g. thermal, chemical or
CC radiation burns), and in the treatment of angiogenesis, restenosis,
CC atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann-
CC Straussler Syndrome or Creutzfeldt-Jakob disease), and some viral,
CC bacterial or protozoa infections
XX
SQ Sequence 543 AA;

Query Match 100.0%; Score 2842; DB 3; Length 543;
Best Local Similarity 100.0%; Pred. No. 3.8e-273;
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
```

```
Qy        541 ACI 543
              |||
Db        541 ACI 543


RESULT 4
AAY52990
ID   AAY52990 standard; protein; 543 AA.
XX
AC   AAY52990;
XX
DT   21-FEB-2000  (first entry)
XX
DE   Human heparanase protein sequence.
XX
KW   Human; heparanase; hpa; diagnosis; therapy; tumour; cytostatic;
KW   antidiabetic; immunomodulatory; anti-inflammatory; nephrotropic;
KW   metastasis; adenocarcinoma; squamous cell carcinoma; teratocarcinoma;
KW   mesothelioma; melanoma; lymphoma; leukemia; cancer; sepsis; diabetes;
KW   inflammation; haemorrhagic nephritis; nephrotic syndrome;
KW   autoimmune disease; anticancer; kidney disease.
XX
OS   Homo sapiens.
XX
PN   WO9957153-A1.
XX
PD   11-NOV-1999.
XX
PF   29-APR-1999;   99WO-US009255.
XX
PR   01-MAY-1998;   98US-00071739.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA   (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA   (FRIE/) FRIEDMAN M M.
XX
PI   Pecker I,  Vlodavsky I,  Friedman Y,  Perets T;
XX
DR   WPI; 2000-052944/04.
DR   N-PSDB; AAZ33290.
XX
PT   Heparanase-specific molecular probes useful for diagnosis and treatment,
PT   e.g. of tumors, and for targeted drug delivery.
XX
PS   Example; Page 81-82; 90pp; English.
XX
CC   The present invention describes heparanase-specific molecular probes,
CC   useful for methods of detecting heparanase in situ. The probes and anti-
CC   heparanase antibodies are used to detect or quantify the expression of
CC   heparanase, for diagnosis and monitoring of diseases (especially
CC   metastasis), for treatment of heparanase-associated diseases (e.g.
CC   tumours, (adeno)carcinoma, squamous cell carcinoma, teratocarcinoma,
CC   mesothelioma, melanoma, lymphoma or leukemia, a solid cancer (or its
CC   metastases) derived from liver, prostate, bladder, breast, ovary, cervix,
CC   colon, skin, intestine, stomach, uterus and pancreas, kidney disease,
CC   diabetes and inflammation, haemorrhagic nephritis, nephrotic syndrome,
CC   sepsis and inflammatory or autoimmune disease), for targeted drug
CC   delivery (e.g. of anticancer agents) and as research reagents. The
CC   present sequence represents human heparanase, which is used in the
CC   exemplification of the present invention
XX
SQ   Sequence 543 AA;

  Query Match             100.0%;  Score 2842;  DB 3;  Length 543;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543


RESULT 5
AAY97635
ID   AAY97635 standard; protein; 543 AA.
XX
AC   AAY97635;
XX
DT   20-APR-2001  (first entry)
XX
DE   Human heparanase protein sequence.
XX
KW   Heparanase; hnhp1; wound healing; angiogenesis; restenosis; Scrape;
KW   atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;
KW   neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;
KW   gene therapy; human.
XX
OS   Homo sapiens.
XX
PN   WO200100643-A2.
XX
PD   04-JAN-2001.
XX
PF   19-JUN-2000; 2000WO-IL000358.
XX
PR   25-JUN-1999;   99US-0140801P.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Pecker I,  Michal I,  Itzhaki H;
XX
DR   WPI; 2001-137930/14.
XX
PT   New polynucleotides and polypeptides that are distantly homologous to
PT   heparanase, useful in wound healing, as well as in gene therapy protocols
PT   for angiogenesis, restenosis, atherosclerosis, or inflammation.
XX
PS   Disclosure; Page 64-65; 67pp; English.
XX
CC   This sequence represents a heparanase of the invention. The heparanase
```

```
CC   DNA and protein sequences are useful in wound healing, angiogenesis,
CC   restenosis, atherosclerosis, inflammation, pulmonary diseases,
CC   neurodegenerative diseases (such as Scrape, Alzheimer's disease, and
CC   Creutzfeldt-Jakob disease) or viral infections. The heparanase coding
CC   sequence is particularly useful in gene therapy
XX
SQ   Sequence 543 AA;

  Query Match             100.0%;  Score 2842;  DB 4;  Length 543;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543


RESULT 6
ABB07813
ID   ABB07813 standard; protein; 543 AA.
XX
AC   ABB07813;
XX
DT   03-JUL-2002  (first entry)
XX
DE   Human heparanase sequence.
XX
KW   Heparanase; catalytic; cytostatic; antiviral; antibacterial; enzyme;
KW   anti-protozoan; neuroprotective; heparin; human.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1. .35
FT                   /note= "signal peptide"
FT   Protein         36. .543
FT                   /note= "mature protein"
XX
PN   US2002034810-A1.
XX
PD   21-MAR-2002.
XX
PF   16-AUG-2001; 2001US-00930218.
XX
PR   20-SEP-2000; 2000US-00666390.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Goldshmidt O,  Pecker I,  Vlodavsky I,  Michal I,  Zcharia E;
XX
DR   WPI; 2002-338926/37.
XX
PT   Nucleic acid encoding avian and reptile heparanase polypeptide is useful
PT   to treat various heparin-related disorders and the signal peptide is
PT   useful in production of membrane-targeted or secreted recombinant
PT   proteins.
XX
PS   Disclosure; Fig 1a; 39pp; English.
XX
CC   The invention relates to an isolated avian and reptile nucleic acid,
CC   encoding a polypeptide with heparanase catalytic activity. The signal
CC   peptide of the nucleic acid can be used to express membrane-associated or
CC   secreted proteins in heterologous expression systems. The encoded
CC   polypeptides can be used to prevent tumour angiogenesis, metastasis and
CC   invasion, and to intervene with pathologies associated with impaired
CC   heparin-binding growth factors, cellular responses to heparin-binding
CC   growth factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoa and bacterial infections or
CC   disintegration of neurodegenerative plaques. The present sequence
CC   represents a human heparanase protein sequence used in similarity studies
XX
SQ   Sequence 543 AA;

  Query Match             100.0%;  Score 2842;  DB 5;  Length 543;
  Best Local Similarity   100.0%;  Pred. No. 3.8e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
```

```
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
                |||
Db        541 ACI 543


RESULT 7
AAY02346
ID   AAY02346 standard; protein; 592 AA.
XX
AC   AAY02346;
XX
DT   09-JUL-1999  (first entry)
XX
DE   A human heparanase protein.
XX
KW   Heparanase; hpa; modulator; heparin-binding growth factor;
KW   cellular response; cytokine; cell interaction; plasma lipoprotein;
KW   cellular susceptibility; infection; disintegration;
KW   neurodegenerative plaque; wound healing; angiogenesis; restenosis;
KW   atherosclerosis; inflammation; neurodegenerative disease; neutralise;
KW   plasma heparin; micrometastasis; autoimmune lesion; renal failure.
XX
OS   Homo sapiens.
XX
PN   WO9911798-A1.
XX
PD   11-MAR-1999.
XX
PF   31-AUG-1998;   98WO-US017954.
XX
PR   02-SEP-1997;   97US-00922170.
PR   02-JUL-1998;   98US-00109386.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA   (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA   (FRIE/) FRIEDMAN M M.
XX
PI   Pecker I,  Vlodavsky I,  Feinstein E;
XX
DR   WPI; 1999-302255/25.
DR   N-PSDB; AAX35650.
XX
PT   New human polynucleotide useful for treating angiogenesis, restenosis,
PT   and inflammation.
XX
PS   Claim 6; Page 65-66; 63pp; English.
XX
CC   The specification describes a polypeptide having heparanase (hpa)
CC   activity. The recombinant protein is used as a modulator of heparin-
CC   binding growth factors, cellular responses to heparin-binding growth
CC   factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoal and bacterial infections or
CC   disintegration of neurodegenerative plaques. Heparanase may be useful for
CC   conditions such as wound healing, angiogenesis, restenosis,
CC   atherosclerosis, inflammation, neurodegenerative diseases, and viral
CC   infections. Mammalian heparanase can be used to neutralize plasma
CC   heparin, and anti-heparanase antibodies may be applied for
CC   immunodetection and diagnosis of micrometastases, autoimmune lesions, and
CC   renal failure in biopsy specimens, plasma samples, and body fluids. The
CC   present sequence represents human heparanase
XX
SQ   Sequence 592 AA;

  Query Match            100.0%;  Score 2842;  DB 2;  Length 592;
  Best Local Similarity  100.0%;  Pred. No. 4.3e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         50 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 109

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        110 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 169

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        170 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 229

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        230 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 289

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        290 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 349

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        350 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 409

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        410 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 469

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        470 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 529

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        530 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 589

Qy        541 ACI 543
                |||
Db        590 ACI 592


RESULT 8
AAB08850
ID   AAB08850 standard; protein; 592 AA.
XX
AC   AAB08850;
XX
DT   15-JAN-2001  (first entry)
XX
DE   Amino acid sequence of a human heparanase polypeptide.
XX
KW   Human; heparanase; gene therapy; tumour; inflammation; autoimmunity;
KW   heparin-binding growth factor; cytokine; neurodegenerative plaque;
KW   wound healing; infection; burn; angiogenesis; restenosis;
KW   atherosclerosis; inflammation; neurodegenerative disease;
KW   Gerstmann-Straussler Syndrome; Creutzfeldt-Jakob disease.
XX
OS   Homo sapiens.
XX
PN   WO200052178-A1.
XX
PD   08-SEP-2000.
XX
PF   14-FEB-2000; 2000WO-US003542.
XX
PR   01-MAR-1999;   99US-00258892.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA   (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA   (FRIE/) FRIEDMAN M M.
XX
PI   Pecker I,  Vlodavsky I,  Feinstein E;
XX
DR   WPI; 2000-579289/54.
DR   N-PSDB; AAA75053.
XX
```

```
PT   New polynucleotides encoding a polypeptide having heparanase activity,
PT   useful in wound healing and in gene therapy, particularly in treating
PT   tumor, inflammation, autoimmunity, neurodegenerative diseases.
XX
PS   Claim 22; Page 122-123; 152pp; English.
XX
CC   The present sequence represents a human protein with heparanase catalytic
CC   activity. The heparanase (hpa) polynucleotide is useful in gene therapy,
CC   particularly in treating tumour, inflammation or autoimmunity.
CC   Particularly, the polynucleotide is useful in modulating the
CC   bioavailability of heparin-binding growth factors, cellular responses to
CC   heparin-binding growth factors (e.g. bFGF) and cytokines (e.g.
CC   interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular
CC   susceptibility to certain viral and some bacterial and protozoa
CC   infections, or disintegration of neurodegenerative plaques. The
CC   polynucleotide is also useful in wound healing (e.g. thermal, chemical or
CC   radiation burns), and in the treatment of angiogenesis, restenosis,
CC   atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann-
CC   Straussler Syndrome or Creutzfeldt-Jakob disease), and some viral,
CC   bacterial or protozoa infections
XX
SQ   Sequence 592 AA;

  Query Match             100.0%;  Score 2842;  DB 3;  Length 592;
  Best Local Similarity   100.0%;  Pred. No. 4.3e-273;
  Matches  543;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         50 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 109

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        110 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 169

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        170 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 229

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        230 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 289

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        290 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 349

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        350 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 409

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        410 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 469

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        470 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 529

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        530 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 589

Qy        541 ACI 543
              |||
Db        590 ACI 592


RESULT 9
AAY17082
ID   AAY17082 standard; protein; 543 AA.
XX
AC   AAY17082;
XX
DT   21-JUL-1999  (first entry)
XX
DE   Human heparanase enzyme.
XX
KW   Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;
KW   metastasis; angiogenesis; wound healing; angioplasty-induced restenosis;
KW   arteriosclerosis; atherosclerosis; inflammation; tissue development;
KW   human; HSPG.
XX
OS   Homo sapiens.
XX
PN   WO9921975-A1.
XX
PD   06-MAY-1999.
XX
PF   28-OCT-1998;   98WO-AU000898.
XX
PR   28-OCT-1997;   97AU-00000062.
PR   09-DEC-1997;   97AU-00000812.
XX
PA   (AUSU ) UNIV AUSTRALIAN NAT.
XX
PI   Freeman CG,  Hulett MD,  Parish CR,  Hamdorf BJ;
XX
DR   WPI; 1999-312956/26.
DR   N-PSDB; AAX37259.
XX
PT   Polynucleotides encoding mammalian endoglucuronidases, especially
PT   heparanases, useful to promote wound healing.
XX
PS   Claim 6; Page 69-73; 112pp; English.
XX
CC   The invention relates to nucleic acid sequences that encode heparanase
CC   enzymes having endoglucuronidase activity. Recombinant heparanases are
CC   capable of removing the HS side chain from heparan sulfate proteoglycan
CC   (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to
CC   inhibit heparanase, this is useful for treatment of a physiological or
CC   medical condition associated with elevated heparanase activity, such as
CC   metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,
CC   arteriosclerosis, atherosclerosis and inflammation. The human, murine and
CC   rat heparanases can be used to enhance wound healing, especially
CC   associated with tissue development and repair. The conditions mentioned
CC   above can be diagnosed using specific antibodies, and also using primers
CC   and probes specific for the heparanase polynucleotides. Other uses of the
CC   heparanases include sequencing sulfated molecules such as HSPG. The
CC   present sequence represents a human heparanase
XX
SQ   Sequence 543 AA;

  Query Match             99.9%;  Score 2838;  DB 2;  Length 543;
  Best Local Similarity   99.8%;  Pred. No. 9.4e-273;
  Matches  542;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
```

```
Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543
```

RESULT 10
AAB86206
ID AAB86206 standard; protein; 543 AA.
XX
AC AAB86206;
XX
DT 24-AUG-2001 (first entry)
XX
DE Human heparanase inhibitor protein.
XX
KW Heparanase; inhibitor; cardiac insufficiency; cardiant; nephrotropic;
KW hepatotropic; veterinary medicine; congestive heart failure; dyspnoea;
KW primary cardiomyopathy; peripheral odema; pulmonary congestion;
KW hepatic congestion; hydrothorax; ascite; nocturia; human.
XX
OS Homo sapiens.
XX
PN DE19955803-A1.
XX
PD 23-MAY-2001.
XX
PF 19-NOV-1999; 99DE-01055803.
XX
PR 19-NOV-1999; 99DE-01055803.
XX
PA (KNOL) KNOLL AG.
XX
PI Herr D, Hahn A, Laux V;
XX
DR WPI; 2001-368371/39.
DR N-PSDB; AAH20940.
XX
PT Treatment or prevention of cardiac insufficiency and related conditions,
PT e.g. pulmonary congestion and dyspnoea, comprises administration of
PT heparanase inhibitor.
XX
PS Disclosure; Page 11-13; 16pp; German.
XX
CC This invention describes a novel heparanase inhibitor which can be used
CC for the treatment or prevention of cardiac insufficiency and associated
CC indications, symptoms and/or malfunctions. The heparanase inhibitor of
CC the invention has cardiant, nephrotropic and hepatotropic activity. The
CC products of the invention can be used in human and veterinary medicine,
CC for the treatment or prevention of congestive heart failure e.g. primary
CC cardiomyopathy. Associated conditions treated or prevented with the
CC inhibitor are especially peripheral odemas, pulmonary and hepatic
CC congestion, dyspnoea, hydrothorax and ascites. Renal problems, e.g.
CC nocturia can also be treated. This sequence represents the human
CC heparanase protein described in the method of the invention
XX
SQ Sequence 543 AA;

```
  Query Match             99.9%;  Score 2838;  DB 4;  Length 543;
  Best Local Similarity   99.8%;  Pred. No. 9.4e-273;
  Matches  542;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy        541 ACI 543
              |||
Db        541 ACI 543
```

RESULT 11
ADD18950
ID ADD18950 standard; protein; 543 AA.
XX
AC ADD18950;
XX
DT 15-JAN-2004 (first entry)
XX
DE Human disease related protein SeqID439.
XX
KW human; disease state; cytostatic; antiinflammatory; ophthalmological;
KW antiarteriosclerotic; vulnerary; gene therapy;
KW hypoxia-regulated condition; tumourigenesis; angiogenesis; apoptosis;
KW inflammation; erythropoiesis; glycolysis; gluconeogenesis;
KW glucose transportation; catecholamine synthesis; iron transport;
KW nitric oxide synthesis; cancer; ischaemic condition; reperfusion injury;
KW retinopathy; neonatal stress; pre-eclampsia; atherosclerosis;
KW inflammatory condition; wound healing.
XX
OS Homo sapiens.
XX
PN WO2003018621-A2.
XX
PD 06-MAR-2003.
XX
PF 23-AUG-2002; 2002WO-GB003892.
XX

PR 23-AUG-2001; 2001GB-00020558.
PR 05-OCT-2001; 2001GB-00024037.
XX
PA (OXFO-) OXFORD BIOMEDICA UK LTD.
XX
PI Kingsman SM, White J, Ward NR, Harris RA, Naylor S, Mundy CR;
XX
DR WPI; 2003-290046/28.
DR N-PSDB; ADD18951.
XX
PT New substantially purified polypeptide, useful for diagnosing or treating
PT a hypoxia-regulated condition, such as cancer, ischemia, reperfusion
PT injury, retinopathy, pre-eclampsia, atherosclerosis, inflammation, or
PT wound healing.
XX
PS Claim 25; SEQ ID NO 439; 424pp; English.
XX
CC This invention relates to novel human genes and gene product which are
CC implicated in certain disease states. Compounds which modulate the
CC proteins of the invention may have cytostatic, antiinflammatory,
CC ophthalmological, antiarteriosclerotic or vulnerary activities. The
CC sequences of the invention may be useful for gene therapy. The invention
CC may be useful for diagnosing or treating a hypoxia-regulated condition,
CC such as tumourigenesis, angiogenesis, apoptosis, inflammation,
CC erythropoiesis, or the biological response to hypoxia conditions
CC including processes such as glycolysis, gluconeogenesis, glucose
CC transportation, catecholamine synthesis, iron transport or nitric oxide
CC synthesis. The disease includes cancer, ischaemic conditions, reperfusion
CC injury, retinopathy, neonatal stress, pre-eclampsia, atherosclerosis,
CC inflammatory conditions or wound healing. The present sequence is that of
CC a disease related protein of the invention.
XX
SQ Sequence 543 AA;

Query Match 99.9%; Score 2838; DB 7; Length 543;
Best Local Similarity 99.8%; Pred. No. 9.4e-273;
Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
```

```
Qy        541 ACI 543
              |||
Db        541 ACI 543
```

RESULT 12
AAY30124
ID AAY30124 standard; protein; 588 AA.
XX
AC AAY30124;
XX
DT 20-MAR-2003 (revised)
DT 14-OCT-1999 (first entry)
XX
DE A human protein with heparanase activity.
XX
KW Human; heparanase; heparan sulfate; trauma; autoimmune disease;
KW skin disease; cardiovascular disease; nervous system disease;
KW Alzheimer's disease; cancer; cancer metastasis; angiogenesis;
KW inflammation; arthritis.
XX
OS Homo sapiens.
XX
PN WO9940207-A1.
XX
PD 12-AUG-1999.
XX
PF 05-FEB-1999; 99WO-EP000777.
XX
PR 09-FEB-1998; 98GB-00002725.
XX
PA (NOVS) NOVARTIS AG.
PA (NOVS) NOVARTIS-ERFINDUNGEN VERW GES MBH.
XX
PI Nakajima M, Toyoshima M;
XX
DR WPI; 1999-494300/41.
DR N-PSDB; AAX86671.
XX
PT New heparanase polypeptide useful for treating autoimmune diseases, skin
PT diseases, cardiovascular diseases and nervous system diseases including
PT Alzheimer's disease.
XX
PS Claim 3; Page 29-31; 40pp; English.
XX
CC The present sequence represents a polypeptide with human heparanase
CC biological activity. Antagonists and inhibitors of the protein prevent it
CC from degrading the extracellular matrix and releasing heparan sulfate
CC from the extracellular matrix surface. The heparanase protein or the anti
CC -heparanase antibody are used in pharmaceutical compositions for treating
CC warm blooded animals suffering from a disease resulting from shortage or
CC lack of the heparanase protein, or from excessive activity or over-
CC expression of the heparanase protein, respectively. The heparanase
CC protein is used in treating diseases such as trauma, autoimmune disease,
CC skin diseases, cardiovascular diseases and nervous system diseases
CC including Alzheimer's disease resulting from shortage or lack of
CC polypeptide. The anti-heparanase antibody is used in treating the
CC diseases like cancer, cancer metastasis, angiogenesis and inflammation
CC including arthritis resulting from excessive activity or over expression
CC of heparanase protein. The anti-heparanase antibody can be used to detect
CC the presence or absence of polypeptide and its concentration. (Updated on
CC 20-MAR-2003 to correct PA field.)
XX
SQ Sequence 588 AA;

Query Match 99.9%; Score 2838; DB 2; Length 588;
Best Local Similarity 99.8%; Pred. No. 1.1e-272;
Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         46 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 105
```

```
Qy          61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         106 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 165

Qy         121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         166 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 225

Qy         181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         226 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 285

Qy         241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
               |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         286 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 345

Qy         301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         346 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 405

Qy         361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         406 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 465

Qy         421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         466 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 525

Qy         481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         526 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 585

Qy         541 ACI 543
               |||
Db         586 ACI 588
```

RESULT 13
AAB88361
ID AAB88361 standard; protein; 543 AA.
XX
AC AAB88361;
XX
DT 23-MAY-2001 (first entry)
XX
DE Human membrane or secretory protein clone PSEC0090.
XX
KW Human; secretory protein; membrane protein; vaccine; gene therapy;
KW rheumatoid arthritis; diabetes.
XX
OS Homo sapiens.
XX
PN EP1067182-A2.
XX
PD 10-JAN-2001.
XX
PF 07-JUL-2000; 2000EP-00114090.
XX
PR 08-JUL-1999; 99JP-00194179.
PR 11-JAN-2000; 2000JP-00118775.
PR 02-MAY-2000; 2000JP-00183766.
XX
PA (HELI-) HELIX RES INST.
XX
PI Ota T, Isogai T, Nishikawa T, Kawai Y, Sugiyama T, Hayashi K;
XX
DR WPI; 2001-093989/11.
DR N-PSDB; AAF93788.
XX
PT Nucleic acids encoding secretory proteins/membrane proteins, useful in
PT gene therapy or as candidate target molecules in drug development.
XX
PS Claim 1; SEQ ID NO 90; 609pp + Sequence Listing; English.
XX
CC This invention relates to nucleic acid sequences AAF93744 - AAF93916
CC which encode human secretory or membrane proteins represented by AAB88317
CC - AAB88419. Included in the invention are primers AAF93917 - AAF94295 and
CC AAF62232 - AAF62235 which are used to isolate the cDNA sequences of the
CC invention. The invention also includes methods for the production of
CC antibodies directed against the proteins, and cDNA sequences, which can
CC be used in vaccines. The polynucleotide sequences can be used in gene
CC therapy. The polynucleotide sequences and the proteins they encode may be
CC used in the prevention, treatment and diagnosis of diseases associated
CC with inappropriate secretory protein/membrane protein expression. The
CC nucleic acids and complementary sequences may also be used as DNA probes
CC in diagnostic assays (e.g. polymerase chain reactions (PCR)) to detect
CC and quantitate the presence of similar nucleic acid sequences in samples.
CC They may also be used to study the expression and function of secretory
CC proteins/membrane polypeptides and their role in metabolism. The
CC polypeptides may be used as antigens in the production of antibodies
CC against them and in assays to identify modulators (agonists and
CC antagonists) of expression and activity. The antibodies and antagonists
CC may also be used as therapeutic agents to down regulate expression and
CC activity. The antibodies may also be used as diagnostic agents for
CC detecting the presence of the polypeptides in samples (e.g. by enzyme
CC linked immunosorbant assay (ELISA). Examples of diseases which may be
CC treated include rheumatoid arthritis and diabetes
XX
SQ Sequence 543 AA;

```
  Query Match             99.4%;  Score 2826;  DB 4;  Length 543;
  Best Local Similarity   99.4%;  Pred. No. 1.5e-271;
  Matches  540;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy           1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db           1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy          61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy         121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy         181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
               |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||
Db         181 GLDLIFGLNALLGTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy         241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
               |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         241 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy         301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
               ||||||||||||||||||||||||||||||||||||||||||||||:||||||||||||
Db         301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAHGGGAPLLSDTFA 360

Qy         361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy         421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480

Qy         481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVA 540

Qy         541 ACI 543
               |||
Db         541 ACI 543
```

RESULT 14
ABP56822
ID ABP56822 standard; protein; 545 AA.
XX
AC ABP56822;
XX
DT 02-APR-2003 (first entry)
XX
DE Human heparanase protein SEQ ID NO:18.
XX
KW Human; heparanase; phosphorothioate; antisense oligonucleotide;
KW cytostatic; gene therapy; tumour; enzyme.
XX
OS Homo sapiens.
XX
PN WO2003004705-A1.
XX
PD 16-JAN-2003.
XX
PF 01-JUL-2002; 2002WO-US020636.
XX
PR 05-JUL-2001; 2001US-00899440.
XX
PA (UYCO) UNIV COLUMBIA NEW YORK.
XX
PI Stein C;
XX
DR WPI; 2003-201558/19.
DR N-PSDB; ABZ22816.
XX
PT New oligonucleotide having a sequence complementary to a sequence of
PT ribonucleic acid encoding a heparanase, useful for preparing a
PT composition for treating tumor.
XX
PS Disclosure; Page 46-47; 48pp; English.
XX
CC The present invention describes an oligonucleotide having a sequence
CC complementary to a sequence of ribonucleic acid encoding a heparanase.
CC The oligonucleotide hybridises with the ribonucleic acid under conditions
CC of high stringency and has a sequence comprising 10-40 bp. The
CC internucleoside linkages of the oligonucleotide comprise at least one
CC phosphorothioate linkage. Hybridisation of the oligonucleotide to the
CC ribonucleic acid inhibits expression of the heparanase, where inhibition
CC of heparanase means at least a 50% reduction in the quality of
CC heparanase. Also described: (1) a method of inhibiting expression of a
CC heparanase in a cell; (2) a composition comprising the above
CC oligonucleotide in an amount effective to inhibit the expression of
CC heparanase in the cell and a carrier; and (3) a method of treating a
CC tumour in a subject comprises administering to the subject an amount of
CC the above oligonucleotide effective to inhibit expression of a heparanase
CC in the subject. Heparanase antisense oligonucleotides have cytostatic
CC activity, can be used in gene therapy, and can be used for preparing a
CC composition for treating tumours. The present sequence represents human
CC heparanase, which is given in the exemplification of the present
CC invention
XX
SQ Sequence 545 AA;

Query Match 99.1%; Score 2817; DB 6; Length 545;
Best Local Similarity 99.4%; Pred. No. 1.2e-270;
Matches 542; Conservative 1; Mismatches 0; Indels 2; Gaps 2;

```
Qy          1 MLLRSKPALPPP-LMLLLLGPLGPLSPGALPRPAQA-QDVVDLDFFTQEPLHLVSPSFLS 58
              |||||||||||| |||||||||||||||||||||| |||||||||||||||||||||||
Db          1 MLLRSKPALPPPLLMLLLLGPLGPLSPGALPRPAQAQQDVVDLDFFTQEPLHLVSPSFLS 60

Qy         59 VTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYW 118
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 VTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYW 120

Qy        119 QSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFAN 178
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFAN 180

Qy        179 CSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFIN 238
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 CSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFIN 240

Qy        239 GSQLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHY 298
              |||||||:||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 GSQLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHY 300

Qy        299 YLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDT 358
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 YLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDT 360

Qy        359 FAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKV 418
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 FAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKV 420

Qy        419 LMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKY 478
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 LMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKY 480

Qy        479 LLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAK 538
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 LLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAK 540

Qy        539 VAACI 543
              |||||
Db        541 VAACI 545
```

RESULT 15
ADE16012
ID ADE16012 standard; protein; 545 AA.
XX
AC ADE16012;
XX
DT 29-JAN-2004 (first entry)
XX
DE G-coupled protein receptor related polypeptide, SEQ ID No 42.
XX
KW G-coupled protein receptor; antidiabetic; anorectic; antibacterial;
KW virucide; fungicide; cytostatic; nootropic; neuroprotective;
KW antiparkinsonian; haemostatic; antilipaemic; neurogenesis;
KW cell differentiation; cell proliferation; hematopoiesis; wound healing;
KW angiogenesis; gene therapy; chromosome mapping; tissue typing;
KW preventive medicine; pharmacogenomics; human.
XX
OS Homo sapiens.
XX
PN WO200283841-A2.
XX
PD 24-OCT-2002.
XX
PF 03-APR-2002; 2002WO-US010713.
XX
PR 03-APR-2001; 2001US-0281136P.
PR 05-APR-2001; 2001US-0281863P.
PR 05-APR-2001; 2001US-0281906P.
PR 10-APR-2001; 2001US-0282934P.
PR 13-APR-2001; 2001US-0283657P.
PR 13-APR-2001; 2001US-0283678P.
PR 13-APR-2001; 2001US-0283687P.
PR 13-APR-2001; 2001US-0283710P.
PR 17-APR-2001; 2001US-0284234P.
PR 19-APR-2001; 2001US-0285325P.
PR 20-APR-2001; 2001US-0285609P.
PR 23-APR-2001; 2001US-0285748P.
PR 23-APR-2001; 2001US-0285890P.
PR 24-APR-2001; 2001US-0286068P.
PR 27-APR-2001; 2001US-0287213P.
PR 03-MAY-2001; 2001US-0288509P.
PR 30-MAY-2001; 2001US-0294495P.
PR 31-MAY-2001; 2001US-0294801P.

```
PR   31-JUL-2001; 2001US-0309216P.
PR   25-SEP-2001; 2001US-0324775P.
PR   28-NOV-2001; 2001US-0333900P.
PR   02-APR-2002; 2002US-00115479.
XX
PA   (CURA-) CURAGEN CORP.
XX
PI   Li L,  Gerlach V,  Liu X,  Miller CE,  Spytek KA,  Zerhusen BD;
PI   Pena CEA,  Shenoy SG,  Zhong H,  Smithson G,  Casman SJ,  Boldog FL;
PI   Voss EZ,  Vernet CAM,  Macdougall JR,  Rastelli L,  Anderson DW;
PI   Zhong M,  Mezes PD,  Furtak K,  Patturajan M,  Burgess CE,  Malyankar UM;
PI   Shimkets RA,  Taupier RJ,  Edinger SR,  Mazur A;
XX
DR   WPI; 2003-067574/06.
DR   N-PSDB; ADE16011.
XX
PT   New isolated NOVX polypeptides and polynucleotides, useful for
PT   preventing, diagnosing or treating NOVX-associated disorders e.g.
PT   diabetes, obesity, dyslipidemias, cancer, Parkinson's disease,
PT   Alzheimer's disease, infections.
XX
PS   Claim 1; SEQ ID NO 42; 320pp; English.
XX
CC   The invention relates to a novel isolated G-coupled protein receptor
CC   related polypeptides. The novel polypeptide comprise any of the 22 fully
CC   defined sequences of 87-1780 amino acids, given in the specification;
CC   their mature forms; and possible variants. The novel polypeptides have
CC   the following activities: antidiabetic, anorectic, antibacterial,
CC   virucide, fungicide, cytostatic, nootropic, neuroprotective,
CC   antiparkinsonian, haemostatic, and antilipaemic. The G-coupled protein
CC   receptor related polypeptides are useful in a method of treating or
CC   preventing in a human, a pathology associated with the G-coupled protein
CC   receptor related polypeptides. The polypeptides are useful in the
CC   manufacture of a medicament for treating a syndrome associated with a
CC   human disease, preferably a NOVX-associated disorder. The novel
CC   polypeptides are useful for treating, preventing or diagnosing diseases,
CC   such as metabolic disorders, diabetes, obesity, infectious diseases,
CC   anorexia, cancer-associated diseases, neurodegenerative disorders,
CC   Alzheimer's disease, Parkinson's disease, immune disorders, hematopoietic
CC   disorders, and various dyslipidaemias, metabolic disturbances associated
CC   with obesity, metabolic X syndrome and wasting disorders associated with
CC   chronic diseases and various cancers. The nucleic acids and polypeptides
CC   may also be used as targets for the identification of small molecules
CC   that modulate or inhibit e.g. neurogenesis, cell differentiation, cell
CC   proliferation, hematopoiesis, wound healing and angiogenesis, in gene
CC   therapy, in generation of antibodies that bind immunospecifically to NOVX
CC   substances for use in therapeutic or diagnostic methods. The nucleic
CC   acids are further used as hybridization probes, in chromosome mapping,
CC   tissue typing, preventive medicine, and pharmacogenomics. This sequence
CC   represents one of the novel G-coupled protein receptor related
CC   polypeptides of the invention.
XX
SQ   Sequence 545 AA;

  Query Match             99.1%;  Score 2817;  DB 7;  Length 545;
  Best Local Similarity   99.4%;  Pred. No. 1.2e-270;
  Matches  542;  Conservative    1;  Mismatches    0;  Indels    2;  Gaps    2;

Qy          1 MLLRSKPALPPP-LMLLLLGPLGPLSPGALPRPAQA-QDVVDLDFFTQEPLHLVSPSFLS 58
              ||||||||||||  |||||||||||||||||||||| |||||||||||||||||||||||
Db          1 MLLRSKPALPPPLLMLLLLGPLGPLSPGALPRPAQAQQDVVDLDFFTQEPLHLVSPSFLS 60

Qy         59 VTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYW 118
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 VTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYW 120

Qy        119 QSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFAN 178
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFAN 180

Qy        179 CSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFIN 238
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 CSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFIN 240

Qy        239 GSQLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHY 298
              |||||||:|||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 GSQLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHY 300

Qy        299 YLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDT 358
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 YLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDT 360

Qy        359 FAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKV 418
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 FAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKV 420

Qy        419 LMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKY 478
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 LMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKY 480

Qy        479 LLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAK 538
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 LLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAK 540

Qy        539 VAACI 543
              |||||
Db        541 VAACI 545


RESULT 16
AAY34173
ID   AAY34173 standard; protein; 530 AA.
XX
AC   AAY34173;
XX
DT   15-NOV-1999  (first entry)
XX
DE   Human pre-proheparanase protein sequence.
XX
KW   Human; pre-proheparanase; platelet; wound healing; angiogenesis blocker;
KW   inflammation; psoriasis; diabetic retinopathy; solid tumour; arthritis;
KW   heparin degradation; anticoagulant neutralisation; asthma; CNS disease;
KW   inflammatory disease; vascular restenosis; atherosclerosis; diagnosis;
KW   tumour growth; fibroproliferative disorder; neurodegenerative disease;
KW   therapy.
XX
OS   Homo sapiens.
XX
PN   WO9943830-A2.
XX
PD   02-SEP-1999.
XX
PF   18-FEB-1999;   99WO-US001489.
XX
PR   24-FEB-1998;   98US-0075706P.
PR   26-MAR-1998;   98US-0079401P.
XX
PA   (PHAA ) PHARMACIA & UPJOHN CO.
XX
PI   Heinrikson RL,  Fairbanks MB,  Mildner AM;
XX
DR   WPI; 1999-540598/45.
DR   N-PSDB; AAZ11236.
XX
PT   New isolated platelet heparanase polypeptides, used to develop products
PT   for, e.g. wound healing and blocking angiogenesis.
XX
PS   Claim 12; Fig 7; 57pp; English.
XX
CC   This sequence is the human pre-proheparanase of the invention. This
CC   sequence was isolated from human platelets. The heparanase can be used
CC   for identifying agents which alter heparanase activity. The heparanase
CC   can be used for wound healing or for blocking angiogenesis or
CC   inflammation. It can be used for treating e.g. psoriasis, diabetic
CC   retinopathy or solid tumours, or for the degradation of heparin and the
CC   neutralisation of heparin's anticoagulant properties during surgery.
```

```
CC   Inhibitors of heparanase activity can be used in the treatment of
CC   arthritis, asthma, and other inflammatory diseases, vascular restenosis,
CC   atherosclerosis, tumour growth and progression, fibroproliferative
CC   disorders, and central nervous system (CNS) and neurodegenerative
CC   diseases. The products can also be used for detection and diagnosis. The
CC   purified heparanase, both recombinantly produced human heparanase and
CC   heparanase isolated from human platelet activity, allows for the
CC   convenient selection of compounds having anti-heparanase activity, i.e.
CC   inhibitors of heparanase activity, by measuring inhibition of heparanase
CC   activity. Inhibition of heparanase activity can be measured by blocking
CC   heparanase-mediated release of radioactive fragments from in vivo
CC   radiolabelled (HSPG)/heparin
XX
SQ   Sequence 530 AA;

  Query Match             97.3%;  Score 2764;  DB 2;  Length 530;
  Best Local Similarity   99.4%;  Pred. No. 2.1e-265;
  Matches  527;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy         14 MLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFLI 73
              |||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLLLGPLGPFSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFLI 60

Qy         74 LLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSIP 133
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 LLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSIP 120

Qy        134 PDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLR 193
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 PDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLR 180

Qy        194 TADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLL 253
              ||||||||||||||||||||||||||||||||||||||||||||||||||||:|||||||
Db        181 TADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDFIQLHKLL 240

Qy        254 RKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNP 313
              ||||||||||||||||||||||||||||||||||||||||||||||||||||:||||||
Db        241 RKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATKEDFLNP 300

Qy        314 DVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSA 373
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 DVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSA 360

Qy        374 RMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRV 433
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 RMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRV 420

Qy        434 YLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSV 493
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 YLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSV 480

Qy        494 QLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
              ||||||||||||||||||||||||||||||||||||||||||||||||||
Db        481 QLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 530


RESULT 17
AAY17083
ID   AAY17083 standard; protein; 532 AA.
XX
AC   AAY17083;
XX
DT   21-JUL-1999  (first entry)
XX
DE   Seq ID No: 15 of WO9921975.
XX
KW   Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;
KW   metastasis; angiogenesis; wound healing; angioplasty-induced restenosis;
KW   arteriosclerosis; atherosclerosis; inflammation; tissue development;
KW   human; HSPG.
XX
OS   Homo sapiens.
XX
PN   WO9921975-A1.
XX
PD   06-MAY-1999.
XX
PF   28-OCT-1998;   98WO-AU000898.
XX
PR   28-OCT-1997;   97AU-00000062.
PR   09-DEC-1997;   97AU-00000812.
XX
PA   (AUSU ) UNIV AUSTRALIAN NAT.
XX
PI   Freeman CG,  Hulett MD,  Parish CR,  Hamdorf BJ;
XX
DR   WPI; 1999-312956/26.
DR   N-PSDB; AAX37260.
XX
PT   Polynucleotides encoding mammalian endoglucuronidases, especially
PT   heparanases, useful to promote wound healing.
XX
PS   Claim 6; Page 76-79; 112pp; English.
XX
CC   The invention relates to nucleic acid sequences that encode heparanase
CC   enzymes having endoglucuronidase activity. Recombinant heparanases are
CC   capable of removing the HS side chain from heparan sulfate proteoglycan
CC   (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to
CC   inhibit heparanase, this is useful for treatment of a physiological or
CC   medical condition associated with elevated heparanase activity, such as
CC   metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,
CC   arteriosclerosis, atherosclerosis and inflammation. The human, murine and
CC   rat heparanases can be used to enhance wound healing, especially
CC   associated with tissue development and repair. The conditions mentioned
CC   above can be diagnosed using specific antibodies, and also using primers
CC   and probes specific for the heparanase polynucleotides. Other uses of the
CC   heparanases include sequencing sulfated molecules such as HSPG
XX
SQ   Sequence 532 AA;

  Query Match             96.3%;  Score 2737;  DB 2;  Length 532;
  Best Local Similarity   99.8%;  Pred. No. 1e-262;
  Matches  522;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MLLRSKPALPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVT 60

Qy         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 IDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQS 120

Qy        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 QVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCS 180

Qy        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 GLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGS 240

Qy        241 QLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300
              |||||:||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 QLGEDFIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYL 300

Qy        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 NGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFA 360

Qy        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLM 420

Qy        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        421 ASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLL 480
```

```
Qy        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLG 523
              |||||||||||||||||||||||||||||||||||||||||||||
Db        481 RPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLG 523
```

RESULT 18
ABB07815
ID ABB07815 standard; protein; 527 AA.
XX
AC ABB07815;
XX
DT 03-JUL-2002 (first entry)
XX
DE Chicken signal peptide/human heparanase chimeric protein sequence.
XX
KW Heparanase; catalytic; cytostatic; antiviral; antibacterial; enzyme;
KW anti-protozoan; neuroprotective; heparin; chicken; human; chimeric.
XX
OS Synthetic.
OS Gallus gallus.
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1. .19
FT /note= "chicken heparanase signal peptide"
FT Protein 20. .527
FT /note= "human heparanase mature protein"
XX
PN US2002034810-A1.
XX
PD 21-MAR-2002.
XX
PF 16-AUG-2001; 2001US-00930218.
XX
PR 20-SEP-2000; 2000US-00666390.
XX
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI Goldshmidt O, Pecker I, Vlodavsky I, Michal I, Zcharia E;
XX
DR WPI; 2002-338926/37.
DR N-PSDB; ABL40753.
XX
PT Nucleic acid encoding avian and reptile heparanase polypeptide is useful
PT to treat various heparin-related disorders and the signal peptide is
PT useful in production of membrane-targeted or secreted recombinant
PT proteins.
XX
PS Disclosure; Page 26-28; 39pp; English.
XX
CC The invention relates to an isolated avian and reptile nucleic acid,
CC encoding a polypeptide with heparanase catalytic activity. The signal
CC peptide of the nucleic acid can be used to express membrane-associated or
CC secreted proteins in heterologous expression systems. The encoded
CC polypeptides can be used to prevent tumour angiogenesis, metastasis and
CC invasion, and to intervene with pathologies associated with impaired
CC heparin-binding growth factors, cellular responses to heparin-binding
CC growth factors and cytokines, cell interaction with plasma lipoproteins,
CC cellular susceptibility to viral, protozoa and bacterial infections or
CC disintegration of neurodegenerative plaques. The present sequence
CC represents a chicken signal peptide/human heparanase chimeric protein
CC sequence
XX
SQ Sequence 527 AA;

```
  Query Match             94.1%;  Score 2673.5;  DB 5;  Length 527;
  Best Local Similarity   96.8%;  Pred. No. 2.1e-256;
  Matches  514;  Conservative    4;  Mismatches    4;  Indels    9;  Gaps    1;

Qy         13 LMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFL 72
              |::|||         |:|    ||||||||||||||||||||||||||||||||||||
Db          6 LLVLLL---------AVPPRRTAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFL 56

Qy         73 ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSI 132
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         57 ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSI 116

Qy        133 PPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALL 192
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        117 PPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALL 176

Qy        193 RTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKL 252
              ||||||||||||||||||||||||||||||||||||||||||||||||||:||||||
Db        177 RTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDFIQLHKL 236

Qy        253 LRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLN 312
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        237 LRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLN 296

Qy        313 PDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLS 372
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        297 PDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLS 356

Qy        373 ARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLR 432
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        357 ARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLR 416

Qy        433 VYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKS 492
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        417 VYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKS 476

Qy        493 VQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
              |||||||||||||||||||||||||||||||||||||||||||||||||||
Db        477 VQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 527
```

RESULT 19
AAB08851
ID AAB08851 standard; protein; 535 AA.
XX
AC AAB08851;
XX
DT 15-JAN-2001 (first entry)
XX
DE A murine heparanase polypeptide.
XX
KW Human; heparanase; gene therapy; tumour; inflammation; autoimmunity;
KW heparin-binding growth factor; cytokine; neurodegenerative plaque;
KW wound healing; infection; burn; angiogenesis; restenosis;
KW atherosclerosis; inflammation; neurodegenerative disease;
KW Gerstmann-Straussler Syndrome; Creutzfeldt-Jakob disease.
XX
OS Mus sp.
XX
PN WO200052178-A1.
XX
PD 08-SEP-2000.
XX
PF 14-FEB-2000; 2000WO-US003542.
XX
PR 01-MAR-1999; 99US-00258892.
XX
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.
PA (HADA-) HADASIT MEDICAL RES SERVICES & DEV.
PA (FRIE/) FRIEDMAN M M.
XX
PI Pecker I, Vlodavsky I, Feinstein E;
XX
DR WPI; 2000-579289/54.
DR N-PSDB; AAA75081.
XX
PT New polynucleotides encoding a polypeptide having heparanase activity,
PT useful in wound healing and in gene therapy, particularly in treating
PT tumor, inflammation, autoimmunity, neurodegenerative diseases.
XX
PS Claim 22; Page 144-145; 152pp; English.

XX
CC The present sequence represents murine protein with heparanase catalytic
CC activity. The heparanase (hpa) polynucleotide is useful in gene therapy,
CC particularly in treating tumour, inflammation or autoimmunity.
CC Particularly, the polynucleotide is useful in modulating the
CC bioavailability of heparin-binding growth factors, cellular responses to
CC heparin-binding growth factors (e.g. bFGF) and cytokines (e.g.
CC interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular
CC susceptibility to certain viral and some bacterial and protozoa
CC infections, or disintegration of neurodegenerative plaques. The
CC polynucleotide is also useful in wound healing (e.g. thermal, chemical or
CC radiation burns), and in the treatment of angiogenesis, restenosis,
CC atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann-
CC Straussler Syndrome or Creutzfeldt-Jakob disease), and some viral,
CC bacterial or protozoa infections
XX
SQ Sequence 535 AA;

Query Match 75.5%; Score 2146; DB 3; Length 535;
Best Local Similarity 76.5%; Pred. No. 6.5e-204;
Matches 406; Conservative 51; Mismatches 74; Indels 0; Gaps 0;

```
Qy         13 LMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFL 72
              |:| | |||| |: ||   |   |||||:|:|: ||  |||||||:||||:||||||||
Db          5 LLLWLWGPLGALAQGAPAGTAPTDDVVDLEFYTKRPLRSVSPSFLSITIDASLATDPRFL 64

Qy         73 ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSI 132
                |||:|| |||||||||||||||||||||||| || | ||||||:|||| |||:   :
Db         65 TFLGSPRLRALARGLSPAYLRFGGTKTDFLIFDPDKEPTSEERSYWKSQVNHDICRSEPV 124

Qy        133 PPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALL 192
                |  ||::|||:|| ||||| |||:||||||||||||:||:|| |||||||||||||||
Db        125 SAAVLRKLQVEWPFQELLLLREQYQKEFKNSTYSRSSVDMLYSFAKCSGLDLIFGLNALL 184

Qy        193 RTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKL 252
              || ||:|||||||||||||||||||||||||||||| ||| | |:| |||||:::||||
Db        185 RTPDLRWNSSNAQLLLDYCSSKGYNISWELGNEPNSFWKKAHILIDGLQLGEDFVELHKL 244

Qy        253 LRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLN 312
              |::| |:||||||||:|||| || |:|:||||||||||||:|||||||||| ||:||||:
Db        245 LQRSAFQNAKLYGPDIGQPRGKTVKLLRSFLKAGGEVIDSLTWHHYYLNGRIATKEDFLS 304

Qy        313 PDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLS 372
                | || || ||||: :| :   |||||||||||||||||||||:|||||||||||||||
Db        305 SDALDTFILSVQKILKVTKEITPGKKVWLGETSSAYGGGAPLLSNTFAAGFMWLDKLGLS 364

Qy        373 ARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLR 432
              |:||||||||||||||||||||||:|||||||||||||||| :||:: |:|  | |||
Db        365 AQMGIEVVMRQVFFGAGNYHLVDENFEPLPDYWLSLLFKKLVGPRVLLSRVKGPDRSKLR 424

Qy        433 VYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKS 492
              |||||||  :|||:|||||||| :|||||||:|::| |   | || |||:| || ||||||
Db        425 VYLHCTNVYHPRYQEGDLTLYVLNLHNVTKHLKVPPPLFRKPVDTYLLKPSGPDGLLSKS 484

Qy        493 VQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
              |||||  |||||:|||| | ||||  ||:| |||||| ||||||||:||||
Db        485 VQLNGQILKMVDEQTLPALTEKPLPAGSALSLPAFSYGFFVIRNAKIAACI 535
```

RESULT 20
ABB07811
ID ABB07811 standard; protein; 535 AA.
XX
AC ABB07811;
XX
DT 03-JUL-2002 (first entry)
XX
DE Mouse heparanase sequence.
XX
KW Heparanase; catalytic; cytostatic; antiviral; antibacterial; enzyme;
KW anti-protozoan; neuroprotective; heparin; mouse.
XX
OS Mus musculus.

XX
FH Key Location/Qualifiers
FT Peptide 1. .17
FT /note= "putative signal peptide"
FT Protein 18. .535
FT /note= "mature protein"
XX
PN US2002034810-A1.
XX
PD 21-MAR-2002.
XX
PF 16-AUG-2001; 2001US-00930218.
XX
PR 20-SEP-2000; 2000US-00666390.
XX
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI Goldshmidt O, Pecker I, Vlodavsky I, Michal I, Zcharia E;
XX
DR WPI; 2002-338926/37.
XX
PT Nucleic acid encoding avian and reptile heparanase polypeptide is useful
PT to treat various heparin-related disorders and the signal peptide is
PT useful in production of membrane-targeted or secreted recombinant
PT proteins.
XX
PS Disclosure; Fig 1a; 39pp; English.
XX
CC The invention relates to an isolated avian and reptile nucleic acid,
CC encoding a polypeptide with heparanase catalytic activity. The signal
CC peptide of the nucleic acid can be used to express membrane-associated or
CC secreted proteins in heterologous expression systems. The encoded
CC polypeptides can be used to prevent tumour angiogenesis, metastasis and
CC invasion, and to intervene with pathologies associated with impaired
CC heparin-binding growth factors, cellular responses to heparin-binding
CC growth factors and cytokines, cell interaction with plasma lipoproteins,
CC cellular susceptibility to viral, protozoa and bacterial infections or
CC disintegration of neurodegenerative plaques. The present sequence
CC represents a mouse heparanase protein sequence used in similarity studies
XX
SQ Sequence 535 AA;

Query Match 75.5%; Score 2146; DB 5; Length 535;
Best Local Similarity 76.5%; Pred. No. 6.5e-204;
Matches 406; Conservative 51; Mismatches 74; Indels 0; Gaps 0;

```
Qy         13 LMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFL 72
              |:| | |||| |: ||   |   |||||:|:|: ||  |||||||:||||:||||||||
Db          5 LLLWLWGPLGALAQGAPAGTAPTDDVVDLEFYTKRPLRSVSPSFLSITIDASLATDPRFL 64

Qy         73 ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSI 132
                |||:|| |||||||||||||||||||||||| || | ||||||:|||| |||:   :
Db         65 TFLGSPRLRALARGLSPAYLRFGGTKTDFLIFDPDKEPTSEERSYWKSQVNHDICRSEPV 124

Qy        133 PPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALL 192
                |  ||::|||:|| ||||| |||:||||||||||||:||:|| |||||||||||||||
Db        125 SAAVLRKLQVEWPFQELLLLREQYQKEFKNSTYSRSSVDMLYSFAKCSGLDLIFGLNALL 184

Qy        193 RTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKL 252
              || ||:|||||||||||||||||||||||||||||| ||| | |:| |||||:::||||
Db        185 RTPDLRWNSSNAQLLLDYCSSKGYNISWELGNEPNSFWKKAHILIDGLQLGEDFVELHKL 244

Qy        253 LRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLN 312
              |::| |:||||||||:|||| || |:|:||||||||||||:|||||||||| ||:||||:
Db        245 LQRSAFQNAKLYGPDIGQPRGKTVKLLRSFLKAGGEVIDSLTWHHYYLNGRIATKEDFLS 304

Qy        313 PDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLS 372
                | || || ||||: :| :   |||||||||||||||||||||:|||||||||||||||
Db        305 SDALDTFILSVQKILKVTKEITPGKKVWLGETSSAYGGGAPLLSNTFAAGFMWLDKLGLS 364

Qy        373 ARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLR 432
              |:||||||||||||||||||||||:|||||||||||||||| :||:: |:|  | |||
Db        365 AQMGIEVVMRQVFFGAGNYHLVDENFEPLPDYWLSLLFKKLVGPRVLLSRVKGPDRSKLR 424
```

```
Qy        433 VYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKS 492
              |||||||  :|||:|||||||  :|||||||:|::| |    | || |||:| || ||||||
Db        425 VYLHCTNVYHPRYQEGDLTLYVLNLHNVTKHLKVPPPLFRKPVDTYLLKPSGPDGLLSKS 484

Qy        493 VQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
              |||||  |||||:|||| | ||||  ||:| |||||| ||||||||:||||
Db        485 VQLNGQILKMVDEQTLPALTEKPLPAGSALSLPAFSYGFFVIRNAKIAACI 535


RESULT 21
ABB07812
ID   ABB07812 standard; protein; 536 AA.
XX
AC   ABB07812;
XX
DT   03-JUL-2002  (first entry)
XX
DE   Rat heparanase sequence.
XX
KW   Heparanase; catalytic; cytostatic; antiviral; antibacterial; enzyme;
KW   anti-protozoan; neuroprotective; heparin; rat.
XX
OS   Rattus rattus.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1. .16
FT                   /note= "putative signal peptide"
FT   Protein         17. .536
FT                   /note= "mature protein"
XX
PN   US2002034810-A1.
XX
PD   21-MAR-2002.
XX
PF   16-AUG-2001; 2001US-00930218.
XX
PR   20-SEP-2000; 2000US-00666390.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Goldshmidt O,  Pecker I,  Vlodavsky I,  Michal I,  Zcharia E;
XX
DR   WPI; 2002-338926/37.
XX
PT   Nucleic acid encoding avian and reptile heparanase polypeptide is useful
PT   to treat various heparin-related disorders and the signal peptide is
PT   useful in production of membrane-targeted or secreted recombinant
PT   proteins.
XX
PS   Disclosure; Fig 1a; 39pp; English.
XX
CC   The invention relates to an isolated avian and reptile nucleic acid,
CC   encoding a polypeptide with heparanase catalytic activity. The signal
CC   peptide of the nucleic acid can be used to express membrane-associated or
CC   secreted proteins in heterologous expression systems. The encoded
CC   polypeptides can be used to prevent tumour angiogenesis, metastasis and
CC   invasion, and to intervene with pathologies associated with impaired
CC   heparin-binding growth factors, cellular responses to heparin-binding
CC   growth factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoa and bacterial infections or
CC   disintegration of neurodegenerative plaques. The present sequence
CC   represents a rat heparanase protein sequence used in similarity studies
XX
SQ   Sequence 536 AA;

  Query Match             74.7%;  Score 2123;  DB 5;  Length 536;
  Best Local Similarity   75.7%;  Pred. No. 1.3e-201;
  Matches  405;  Conservative   51;  Mismatches   79;  Indels    0;  Gaps    0;

Qy          9 LPPPLMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATD 68
              | | |:| | | |  |: |     | :|||||:|:|:     |||||||:||||:||||
Db          2 LRPLLLLWLWGRLRALTQGTPAGTAPTKDVVDLEFYTKRLFQSVSPSFLSITIDASLATD 61

Qy         69 PRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICK 128
              ||||  ||||:|| |||||||||||||||||||||||| || | ||||||||| | |||
Db         62 PRFLTFLGSPRLRALARGLSPAYLRFGGTKTDFLIFDPNKEPTSEERSYWQSQDNNDICG 121

Qy        129 YGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGL 188
                :  ||  ||::|||:|| ||||| ||::||||||||||||:||:|| || |||||||
Db        122 SERVSADVLRKLQMEWPFQELLLLREQYQREFKNSTYSRSSVDMLYSFAKCSRLDLIFGL 181

Qy        189 NALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQ 248
              |||||| ||:|||||||||:|||||||||||||||||||||| ||| | |:| |||||:::
Db        182 NALLRTPDLRWNSSNAQLLLNYCSSKGYNISWELGNEPNSFWKKAQISIDGLQLGEDFVE 241

Qy        249 LHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATRE 308
              |||||:|| |:|||||||:|||| || |:|:|||||||||||:|||||||||| ||:|
Db        242 LHKLLQKSAFQNAKLYGPDIGQPRGKTVKLLRSFLKAGGEVIDSLTWHHYYLNGRVATKE 301

Qy        309 DFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDK 368
              |||: |||| || ||||: :| :   |||||||||||||||||||:||||||||||
Db        302 DFLSSDVLDTFILSVQKILKVTKEMTPGKKVWLGETSSAYGGGAPLLSNTFAAGFMWLDK 361

Qy        369 LGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKR 428
              |||||::|||||||||||||||||||:|||||||||||||| |||| :| |
Db        362 LGLSAQLGIEVVMRQVFFGAGNYHLVDENFEPLPDYWLSLLFKKLVGPKVLMSRVKGPDR 421

Qy        429 RKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGL 488
              ||||||||||  :|||:|||||||  :|||||||:|:|| |  :: ||||||:| |  ||
Db        422 SKLRVYLHCTNVYHPRYREGDLTLYVLNLHNVTKHLKLPPPMFSRPVDKYLLKPFGSDGL 481

Qy        489 LSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
              |||||||| ||||||:|||| | ||||  |||| :||||| ||||||||:||||
Db        482 LSKSVQLNGQTLKMVDEQTLPALTEKPLPAGSSLSVPAFSYGFFVIRNAKIAACI 536


RESULT 22
ABB07814
ID   ABB07814 standard; protein; 523 AA.
XX
AC   ABB07814;
XX
DT   03-JUL-2002  (first entry)
XX
DE   Chicken heparanase sequence.
XX
KW   Heparanase; catalytic; cytostatic; antiviral; antibacterial; enzyme;
KW   anti-protozoan; neuroprotective; heparin; chicken.
XX
OS   Gallus gallus.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1. .19
FT                   /note= "putative signal peptide"
FT   Protein         20. .523
FT                   /note= "mature protein"
XX
PN   US2002034810-A1.
XX
PD   21-MAR-2002.
XX
PF   16-AUG-2001; 2001US-00930218.
XX
PR   20-SEP-2000; 2000US-00666390.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Goldshmidt O,  Pecker I,  Vlodavsky I,  Michal I,  Zcharia E;
XX
DR   WPI; 2002-338926/37.
DR   N-PSDB; ABL40748.
XX
PT   Nucleic acid encoding avian and reptile heparanase polypeptide is useful
PT   to treat various heparin-related disorders and the signal peptide is
PT   useful in production of membrane-targeted or secreted recombinant
```

```
PT   proteins.
XX
PS   Claim 19; Fig 1b; 39pp; English.
XX
CC   The invention relates to an isolated avian and reptile nucleic acid,
CC   encoding a polypeptide with heparanase catalytic activity. The signal
CC   peptide of the nucleic acid can be used to express membrane-associated or
CC   secreted proteins in heterologous expression systems. The encoded
CC   polypeptides can be used to prevent tumour angiogenesis, metastasis and
CC   invasion, and to intervene with pathologies associated with impaired
CC   heparin-binding growth factors, cellular responses to heparin-binding
CC   growth factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoa and bacterial infections or
CC   disintegration of neurodegenerative plaques. The present sequence
CC   represents a chicken heparanase protein
XX
SQ   Sequence 523 AA;

  Query Match             57.9%;  Score 1645.5;  DB 5;  Length 523;
  Best Local Similarity   60.2%;  Pred. No. 3.9e-154;
  Matches  320;  Conservative   87;  Mismatches  114;  Indels   11;  Gaps    3;

Qy         13 LMLLLLGPLGPLSPGALPRPAQAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFL 72
Db          2 LVLLLLVLLLAVPP---------RRTAELQLGLREPIGAVSPAFLSLTLDASLARDPRFV 52

Qy         73 ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYWQSQVNQDICKYGSI 132
Db         53 ALLRHPKLHTLASGLSPGFLRFGGTSTDFLIFNPNKDSTWEEKVLSEFQA-KDVCEAWPS 111

Qy        133 PPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALL 192
Db        112 FAVVPKLLLTQWPLQEKLLLAEHSWKKHKNTTITRSTLDILHTFASSSGFRLVFGLNALL 171

Qy        193 RTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKL 252
Db        172 RRAGLQWDSSNAKQLLGYCAQRSYNISWELGNEPNSFRKKSGICIDGFQLGRDFVHLRQL 231

Qy        253 L-RKSTFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFL 311
Db        232 LSQHPLYRHAELYGLDVGQPRKHTQHLLRSFMKSGGKAIDSVTWHHYYVNGRSATREDFL 291

Qy        312 NPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGL 371
Db        292 SPEVLDSFATAIHDVLGIVEATVPGKKVWLGETGSAYGGGAPQLSNTYVAGFMWLDKLGL 351

Qy        372 SARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKL 431
Db        352 AARRGIDVVMRQVSFGAGSYHLVDAGFKPLPDYWLSLLYKRLVGTRVLQASVEQADARRP 411

Qy        432 RVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSK 491
Db        412 RVYLHCTNPRHPKYREGDVTLFALNLSNVTQSLQLPKQLWSKSVDQYLLLPHGKDSILSR 471

Qy        492 SVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAACI 543
Db        472 EVQLNGRLLQMVDDETLPALHEMALAPGSTLGLPAFSYGFYVIRNAKAIACI 523


RESULT 23
AAY17085
ID   AAY17085 standard; protein; 380 AA.
XX
AC   AAY17085;
XX
DT   21-JUL-1999  (first entry)
XX
DE   Rat heparanase enzyme.
XX
KW   Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;
KW   metastasis; angiogenesis; wound healing; angioplasty-induced restenosis;
KW   arteriosclerosis; atherosclerosis; inflammation; tissue development; rat;
KW   HSPG.
XX
OS   Rattus sp.
XX
PN   WO9921975-A1.
XX
PD   06-MAY-1999.
XX
PF   28-OCT-1998;   98WO-AU000898.
XX
PR   28-OCT-1997;   97AU-00000062.
PR   09-DEC-1997;   97AU-00000812.
XX
PA   (AUSU ) UNIV AUSTRALIAN NAT.
XX
PI   Freeman CG,  Hulett MD,  Parish CR,  Hamdorf BJ;
XX
DR   WPI; 1999-312956/26.
DR   N-PSDB; AAX37262.
XX
PT   Polynucleotides encoding mammalian endoglucuronidases, especially
PT   heparanases, useful to promote wound healing.
XX
PS   Claim 6; Page 87-90; 112pp; English.
XX
CC   The invention relates to nucleic acid sequences that encode heparanase
CC   enzymes having endoglucuronidase activity. Recombinant heparanases are
CC   capable of removing the HS side chain from heparan sulfate proteoglycan
CC   (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to
CC   inhibit heparanase, this is useful for treatment of a physiological or
CC   medical condition associated with elevated heparanase activity, such as
CC   metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,
CC   arteriosclerosis, atherosclerosis and inflammation. The human, murine and
CC   rat heparanases can be used to enhance wound healing, especially
CC   associated with tissue development and repair. The conditions mentioned
CC   above can be diagnosed using specific antibodies, and also using primers
CC   and probes specific for the heparanase polynucleotides. Other uses of the
CC   heparanases include sequencing sulfated molecules such as HSPG. The
CC   present sequence represents a rat heparanase
XX
SQ   Sequence 380 AA;

  Query Match             56.8%;  Score 1614;  DB 2;  Length 380;
  Best Local Similarity   79.7%;  Pred. No. 3.2e-151;
  Matches  303;  Conservative   35;  Mismatches   42;  Indels    0;  Gaps    0;

Qy        164 TYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELG 223
Db          1 TYSRSSVDMLYSFAKCSRLDLIFGLNALLRTPDLRWNSSNAQLLLNYCSSKGYNICWELG 60

Qy        224 NEPNSFLKKADIFINGSQLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFL 283
Db         61 NEPNSFWKKAHISIDGLQLGEDFVELHKLLQKSAFQNAKLYGPDIGQPRGKTVKLLRSFL 120

Qy        284 KAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGE 343
Db        121 KAGGEVIDSLTWHHYYLNGRVATKEDFLSSDVLDTFILSVQKILKVTKEMTPGKKVWLGE 180

Qy        344 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPD 403
Db        181 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSAQLGIEVVMRQVFFGAGNYHLVDENFEPLPD 240

Qy        404 YWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKY 463
Db        241 YWLSLLFKKLVGPKVLMSRVKGPDRSKLRVYLHCTNVYHPRYREGDLTLYVLNLHNVTKH 300

Qy        464 LRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLG 523
Db        301 LKLPPPMFSRPVDKYLLKPFGSDGLLSKSVQLNGQTLKMVDEQTLPALTEKPLPAGSSLS 360

Qy        524 LPAFSYSFFVIRNAKVAACI 543
Db        361 VPAFSYGFFVIRNAKIAACI 380
```

```
RESULT 24
AAY17084
ID   AAY17084 standard; protein; 380 AA.
XX
AC   AAY17084;
XX
DT   21-JUL-1999  (first entry)
XX
DE   Mouse heparanase enzyme.
XX
KW   Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;
KW   metastasis; angiogenesis; wound healing; angioplasty-induced restenosis;
KW   arteriosclerosis; atherosclerosis; inflammation; tissue development;
KW   mouse; HSPG.
XX
OS   Mus musculus.
XX
PN   WO9921975-A1.
XX
PD   06-MAY-1999.
XX
PF   28-OCT-1998;   98WO-AU000898.
XX
PR   28-OCT-1997;   97AU-00000062.
PR   09-DEC-1997;   97AU-00000812.
XX
PA   (AUSU ) UNIV AUSTRALIAN NAT.
XX
PI   Freeman CG,  Hulett MD,  Parish CR,  Hamdorf BJ;
XX
DR   WPI; 1999-312956/26.
DR   N-PSDB; AAX37261.
XX
PT   Polynucleotides encoding mammalian endoglucuronidases, especially
PT   heparanases, useful to promote wound healing.
XX
PS   Claim 6; Page 82-85; 112pp; English.
XX
CC   The invention relates to nucleic acid sequences that encode heparanase
CC   enzymes having endoglucuronidase activity. Recombinant heparanases are
CC   capable of removing the HS side chain from heparan sulfate proteoglycan
CC   (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to
CC   inhibit heparanase, this is useful for treatment of a physiological or
CC   medical condition associated with elevated heparanase activity, such as
CC   metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,
CC   arteriosclerosis, atherosclerosis and inflammation. The human, murine and
CC   rat heparanases can be used to enhance wound healing, especially
CC   associated with tissue development and repair. The conditions mentioned
CC   above can be diagnosed using specific antibodies, and also using primers
CC   and probes specific for the heparanase polynucleotides. Other uses of the
CC   heparanases include sequencing sulfated molecules such as HSPG. The
CC   present sequence represents a mouse heparanase
XX
SQ   Sequence 380 AA;

  Query Match             56.4%;  Score 1602;  DB 2;  Length 380;
  Best Local Similarity   78.9%;  Pred. No. 5e-150;
  Matches  300;  Conservative   37;  Mismatches   43;  Indels    0;  Gaps    0;

Qy        164 TYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELG 223
              ||||||||:||:|| |||||||||||||| | ||:|||||||||||||||||||||||||
Db          1 TYSRSSVDMLYSFAKCSGLDLIFGLNALLGTPDLRWNSSNAQLLLDYCSSKGYNISWELG 60

Qy        224 NEPNSFLKKADIFINGSQLGEDYIQLHKLLRKSTFKNAKLYGPDVGQPRRKTAKMLKSFL 283
              |||||| ||| | |:| |||||:::|||||::| |:|||||||:|||| || |:|:|||
Db         61 NEPNSFWKKAHILIDGLQLGEDFVELHKLLQRSAFQNAKLYGPDIGQPRGKTVKLLRSFL 120

Qy        284 KAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGE 343
              |||||||||:|||||||||| ||:|||||: |||| || ||||: :| :   |||||||||
Db        121 KAGGEVIDSLTWHHYYLNGRIATKEDFLSSDVLDTFILSVQKILKVTKEITPGKKVWLGE 180

Qy        344 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPD 403
              |||||||||||||:|||||||||||||||:|||||||||||||||||||||||||:|||| 
Db        181 TSSAYGGGAPLLSNTFAAGFMWLDKLGLSAQMGIEVVMRQVFFGAGNYHLVDENFEPLPD 240

Qy        404 YWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKY 463
              |||||||||||| :||:: |:|  | |||||||||  :|||:||||||| :|||||||: 
Db        241 YWLSLLFKKLVGPRVLLSRVKGPDRSKLRVYLHCTNVYHPRYQEGDLTLYVLNLHNVTKH 300

Qy        464 LRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLG 523
              |::| |   | || |||:| || |||||||||||  |||||:|||| | ||||  ||:|
Db        301 LKVPPPLFRKPVDTYLLKPSGPDGLLSKSVQLNGQILKMVDEQTLPALTEKPLPAGSALS 360

Qy        524 LPAFSYSFFVIRNAKVAACI 543
              |||||| |||||:||:||||
Db        361 LPAFSYGFFVIRDAKIAACI 380


RESULT 25
AAY97632
ID   AAY97632 standard; protein; 592 AA.
XX
AC   AAY97632;
XX
DT   20-APR-2001  (first entry)
XX
DE   Human heparanase, hnhp1, protein sequence.
XX
KW   Heparanase; hnhp1; wound healing; angiogenesis; restenosis; Scrape;
KW   atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;
KW   neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;
KW   gene therapy; human.
XX
OS   Homo sapiens.
XX
PN   WO200100643-A2.
XX
PD   04-JAN-2001.
XX
PF   19-JUN-2000; 2000WO-IL000358.
XX
PR   25-JUN-1999;   99US-0140801P.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Pecker I,  Michal I,  Itzhaki H;
XX
DR   WPI; 2001-137930/14.
DR   N-PSDB; AAA91097.
XX
PT   New polynucleotides and polypeptides that are distantly homologous to
PT   heparanase, useful in wound healing, as well as in gene therapy protocols
PT   for angiogenesis, restenosis, atherosclerosis, or inflammation.
XX
PS   Claim 10; Fig 1; 67pp; English.
XX
CC   This sequence represents a heparanase of the invention. The heparanase
CC   DNA and protein sequences are useful in wound healing, angiogenesis,
CC   restenosis, atherosclerosis, inflammation, pulmonary diseases,
CC   neurodegenerative diseases (such as Scrape, Alzheimer's disease, and
CC   Creutzfeldt-Jakob disease) or viral infections. The heparanase coding
CC   sequence is particularly useful in gene therapy
XX
SQ   Sequence 592 AA;

  Query Match             40.6%;  Score 1154.5;  DB 4;  Length 592;
  Best Local Similarity   43.6%;  Pred. No. 3.4e-105;
  Matches  250;  Conservative   82;  Mismatches  189;  Indels   53;  Gaps    9;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:|||                  | |       : : :: ||  |: |:  |: : 
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
```

```
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                 |:      ||           ||     |||  :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQFSN 195

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
               : |   :  |:| || ||:|||| ||| |||| |  :  ||||:|  || | :|| |||
Db        196 TYSNLILTARSLDKLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNI 255

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
              |||||||||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        256 SWELGNEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 315

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
               :|  |:|  |  :|:||| | |::||     |||   :||     ::|: :|| :  |||
Db        316 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 375

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        376 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 435

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:||||||||||:|:|:|  |||    | | :|:          |||:| ||||  |  |  |
Db        436 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 495

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
               :||: ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||
Db        496 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 555

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |||::|    ||
Db        556 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 589
```

```
RESULT 26
AAU07424
ID   AAU07424 standard; protein; 592 AA.
XX
AC   AAU07424;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Human heparanase-like protein splice variant #1.
XX
KW   Human; immunosuppressive; antiarthritic; antirheumatic; cytostatic;
KW   antiproliferative; cardiant; vasotropic; cerebroprotective; nootropic;
KW   neuroprotective; antibacterial; virucide; fungicide; ophthalmological;
KW   extracellular matrix; ECM; autoimmune disease; rheumatoid arthritis;
KW   hyperproliferative disorder; neoplasm; cardiovascular disorder;
KW   cardiac arrest; cerebrovascular disorder; cerebral ischaemia; infection;
KW   nervous system disorder; Alzheimer's disease; ocular disorder; sunburn;
KW   wound healing; food additive; heparanase.
XX
OS   Homo sapiens.
XX
PN   WO200179253-A1.
XX
PD   25-OCT-2001.
XX
PF   11-APR-2001; 2001WO-US011643.
XX
PR   18-APR-2000; 2000US-0198123P.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Fiscella M,  Shi Y,  Ebner R,  Ruben SM;
XX
DR   WPI; 2001-611720/70.
DR   N-PSDB; AAS13848.
XX
PT   New nucleic acids encoding extracellular matrix polypeptides, for
PT   diagnosing, treating, preventing or ameliorating human disorders and
PT   disease, such as, autoimmune, hyperproliferative or cardiovascular
PT   disorders.
XX
PS   Disclosure; Page 14; 308pp; English.
XX
CC   The invention relates to novel isolated polynucleotides (I) encoding
CC   extracellular matrix (ECM) polypeptides. (I) and a polypeptide encoded by
CC   (I) are used to prevent, treat or ameliorate a medical condition in e.g.
CC   humans, mice, rabbits, goats, horses, cats, dogs, chickens or sheep. They
CC   are also used in diagnosing a pathological condition or susceptibility to
CC   a pathological condition. The antibodies to the polypeptides can also be
CC   used in alleviating symptoms associated with the disorders and in
CC   diagnostic immunoassays e.g. radioimmunoassays or enzyme linked
CC   immunosorbant assays (ELISA). Disorders which are diagnosed or treated
CC   include autoimmune diseases e.g. rheumatoid arthritis, hyperproliferative
CC   disorders e.g. neoplasms of the breast or liver, cardiovascular disorders
CC   e.g. cardiac arrest, cerebrovascular disorders e.g. cerebral ischaemia,
CC   angiogenesis, nervous system disorders e.g. Alzheimer's disease,
CC   infections caused by bacteria, viruses and fungi and ocular disorders
CC   e.g. corneal infection. The polypeptides can also be used to aid wound
CC   healing and epithelial cell proliferation, to prevent skin aging due to
CC   sunburn, to maintain organs before transplantation, for supporting cell
CC   culture of primary tissues, to regenerate tissues and in chemotaxis. The
CC   polypeptides can also be used as a food additive or preservative to
CC   increase or decrease storage capabilities. The present sequence
CC   represents the amino acid sequence of human heparanase-like protein,
CC   splice variant #1
XX
SQ   Sequence 592 AA;
```

```
  Query Match             40.6%;  Score 1154.5;  DB 4;  Length 592;
  Best Local Similarity   43.6%;  Pred. No. 3.4e-105;
  Matches  250;  Conservative   82;  Mismatches  189;  Indels   53;  Gaps    9;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                 | |       : : :: ||   |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                 |:      ||           ||     |||  :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQFSN 195

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
               : |   :  |:| || ||:|||| ||| |||| |  :  ||||:|  || | :|| |||
Db        196 TYSNLILTARSLDKLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNI 255

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
              |||||||||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        256 SWELGNEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 315

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
               :|  |:|  |  :|:||| | |::||     |||   :||     ::|: :|| :  |||
Db        316 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 375

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        376 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 435

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:||||||||||:|:|:|  |||    | | :|:          |||:| ||||  |  |  |
Db        436 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 495

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
               :||: ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||
Db        496 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 555

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |||::|    ||
Db        556 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 589
```

```
RESULT 27
AAB81062
ID   AAB81062 standard; protein; 592 AA.
XX
AC   AAB81062;
XX
DT   20-JUN-2001  (first entry)
XX
DE   Human Heparanase-2 amino acid sequence.
XX
KW   Heparanase 2; human; endoglucuronidase; heparan sulphate; metastasis;
KW   neoangiogenesis; vaccine; autoimmune disorder; blood coagulation; cancer;
KW   diabetes; ischaemia; sepsis; stroke; cardiovascular; thrombosis.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Region          156. .169
FT                   /label= Immunogenic_epitope
FT   Region          249. .262
FT                   /label= Immunogenic_epitope
FT   Region          505. .518
FT                   /label= Immunogenic_epitope
XX
PN   WO200121814-A1.
XX
PD   29-MAR-2001.
XX
PF   11-SEP-2000; 2000WO-EP008837.
XX
PR   23-SEP-1999;   99EP-00118805.
PR   07-JUL-2000; 2000EP-00114649.
XX
PA   (MERE ) MERCK PATENT GMBH.
XX
PI   Duecker K,  Sirrenberg C;
XX
DR   WPI; 2001-308089/32.
DR   N-PSDB; AAF86101.
XX
PT   New heparanase-2 polypeptide useful in diagnosing (the susceptibility of
PT   a subject to) and as vaccines against e.g. autoimmune disorders,
PT   cardiovascular disease, cancer, diabetes, ischemia, sepsis, stroke, or
PT   thrombosis.
XX
PS   Claim 1; Page 42-43; 46pp; English.
XX
CC   This invention relates to a human heparanase-2 protein and the cDNA
CC   sequence encoding it. Heparanase-2 is a member of the endoglucuronidase
CC   family of polypeptides and it degrades heparan sulphate proteoglycans
CC   HSPGs (ubiquitous macromolecules of cell surfaces, basement membranes and
CC   the extracellular matrix). HSPGs support the vascular endothelium and
CC   stabilise the structure of the capillary wall. Heparanases may be
CC   associated with neoangiogenesis and metastasis related to malignant
CC   tumour formation. Heparanase-2 polynucleotides and proteins are useful as
CC   vaccines for inducing an immunological response against autoimmune
CC   disorders, blood coagulation disorders, cancer, diabetes, ischaemia,
CC   sepsis, stroke, cardiovascular diseases, or thrombosis, as well as in
CC   diagnosing (the susceptibility of a subject to) these diseases.
CC   Heparanase-2 fragments may be used as immunogens to produce antibodies
CC   immunospecific to the polypeptides, and to identify membrane bound
CC   soluble receptors, agonists or antagonists that compete with the binding
CC   of the polypeptide to the receptors. An antibody specific for heparanase-
CC   2 can be used in the diagnosis of the above diseases and in isolating or
CC   identifying clones expressing heparanase-2. The present sequence
CC   represents heparanase-2. Three regions of heparanase-2 with high
CC   immunogenicity (immunogenic epitopes) can be used to raise antibodies
CC   against heparanase-2
XX
SQ   Sequence 592 AA;
```

```
  Query Match             40.4%;  Score 1148.5;  DB 4;  Length 592;
  Best Local Similarity   43.4%;  Pred. No. 1.4e-104;
  Matches  249;  Conservative   82;  Mismatches  190;  Indels   53;  Gaps    9;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                 | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::   |  :|  | | :| |||||||||:|||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI-----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                  |:      ||           ||     |||   |: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLVLQREKAAQMHLVLLKEQFSN 195

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
               : |   :  |:| || ||:|||| ||| |||| |  :  ||||:|  || | :|| |||
Db        196 TYSNLILTARSLDKLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNI 255

Qy        219 SWELGNEPNSPLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
              |||||||||::       :||||||:|||||  ||:   :  | ||||::|:||:
Db        256 SWELGNEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 315

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
              :|  |:|  |  :|:||| | |::||      |||   :||     ::|: :|| :  |||
Db        316 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 375

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        376 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 435

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:|||||||||:|:|:| |||   | | :|:         |||:| |||   |  |  |
Db        436 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 495

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
              :||: ||||   | ::|     :| | :|||:| |  || |||||||  | |||| ||
Db        496 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 555

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |:|::|    ||
Db        556 PELKPRPLRAGRTLVIPPVTMGFYVVKNVNALAC 589


RESULT 28
AAB85215
ID   AAB85215 standard; protein; 592 AA.
XX
AC   AAB85215;
XX
DT   07-SEP-2001  (first entry)
XX
DE   Heparanase-like protein Hpa2 splice variant #1.
XX
KW   Heparanase; splice variant; homologue; heparanase-like protein; Hpa2;
KW   cytostatic; neuroprotective; cerebroprotective; immunosuppressive;
KW   antipsoriatic; nootropic; antiinflammatory; antiarthritic; antiasthmatic;
KW   antidiabetic; antiarteriosclerotic; vulnerary.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 237
FT                   /label= unknown
FT                   /note= "encoded by ANC"
XX
PN   WO200146392-A2.
XX
PD   28-JUN-2001.
XX
PF   21-DEC-2000; 2000WO-GB004963.
XX
```

```
PR   22-DEC-1999;   99GB-00030392.
PR   07-APR-2000; 2000GB-00008713.
XX
PA   (OXFO-) OXFORD GLYCOSCIENCES UK LTD.
XX
PI   Mckenzie EA,  Stamps AC,  Terrett JA,  Tyson KL;
XX
DR   WPI; 2001-418056/44.
DR   N-PSDB; AAH22671.
XX
PT   Novel homologs of heparanase, present in three splice variants, useful
PT   for identifying agents that modulate heparanase, useful in the treatment
PT   and/or prophylaxis of abnormal levels of heparanase.
XX
PS   Claim 1; Fig 1; 97pp; English.
XX
CC   The invention provides a homologue to heparanase which is present in
CC   three splice variants. The heparanase homologue polypeptide is useful in
CC   the treatment of a human or non-human animal or for use in diagnosis.
CC   Vectors comprising the heparanase homologue polynucleotides are useful in
CC   the transformation or transfection of a prokaryotic or eukaryotic host.
CC   The modulators of the polypeptide are useful in the manufacture of a
CC   medicament for the treatment and/or prophylaxis of a condition/disease
CC   associated with abnormal levels of the heparanse homogue, including
CC   cancer, central nervous system (CNS) and neurodegenerative diseases,
CC   cardiovascular diseases such as restenosis following angioplasty and
CC   atherosclerosis, autoimmune diseases, psoriasis, lupus erythematosus,
CC   allografts, inflammatory diseases, arthritis, vascular restenosis, tumour
CC   growth and progression, asthma, Alzheimer's disease, diabetic
CC   retinopathy, wound healing and inflammation. The polypeptide is also
CC   useful in diagnosis and research. The present sequence represents the
CC   amino acid sequence of the largest splice variant of the heparanse-like
CC   protein Hpa2 of the invention
XX
SQ   Sequence 592 AA;

  Query Match             40.4%;  Score 1147.5;  DB 4;  Length 592;
  Best Local Similarity   43.4%;  Pred. No. 1.7e-104;
  Matches  249;  Conservative   82;  Mismatches  190;  Indels   53;  Gaps    9;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                  | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                 |:      ||           ||     ||| :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQFSN 195

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
               : |   :  |:| || ||:|||| ||| |||| |  :  | ||:|  || | :|| |||
Db        196 TYSNLILTARSLDKLYNFADCSGLHLIFALNALRRNPNNSWXSSSALSLLKYSASKKYNI 255

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
              |||||||||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        256 SWELGNEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 315

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
              :|  |:|  |  :|:||| | |::||      |||   :||     ::|: :|| :  |||
Db        316 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 375

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        376 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 435

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:||||||||||:|:|:| |||   | | :|:         |||:| ||||  |  |  |
Db        436 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 495

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
                :||: ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||
Db        496 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 555

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |||::|    ||
Db        556 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 589


RESULT 29
AAE18326
ID   AAE18326 standard; protein; 582 AA.
XX
AC   AAE18326;
XX
DT   07-MAY-2002  (first entry)
XX
DE   Human heparanase-2AB splice variant protein.
XX
KW   Human; heparanase-2AB; Hep-2; wound healing; angiogenesis; restenosis;
KW   atherosclerosis; neurodegenerative disease; inflammation; protamine;
KW   viral infection; autoimmune lesion; renal failure; pancreatic cancer;
KW   dystrophic muscular disease; heart disease; gene therapy; enzyme.
XX
OS   Homo sapiens.
XX
PN   WO200204645-A2.
XX
PD   17-JAN-2002.
XX
PF   12-JUL-2001; 2001WO-EP008094.
XX
PR   12-JUL-2000; 2000EP-00202442.
XX
PA   (VLAA-) VLAAMS INTERUNIVERSITAIR INST BIOTECHNOG.
XX
PI   David G,  Duerr J;
XX
DR   WPI; 2002-171719/22.
DR   N-PSDB; AAD29202.
XX
PT   Heparanase-2 polypeptides and polynucleotides, useful for useful in wound
PT   healing, angiogenesis, and for treating restenosis, atherosclerosis,
PT   inflammation, neurodegenerative diseases, and viral infections.
XX
PS   Claim 1; Page 38-40; 54pp; English.
XX
CC   The invention relates to human heparanase-2 (Hep-2) polypeptides and
CC   polynucleotides. Heparanase-2 protein is useful in wound healing,
CC   angiogenesis, restenosis, atherosclerosis, neurodegenerative diseases,
CC   inflammation and viral infections, as well as in neutralising plasma
CC   heparin as a potential replacement of protamine. Antiheparanase-2
CC   antibodies may be used for immunodetection and diagnosis of
CC   micrometastases, autoimmune lesions, renal failure in biopsy specimens,
CC   plasma samples and body fluids. Molecules, which can agonise or
CC   antagonise heparanase 2 catalytic activity may also be used as a
CC   medicament. Polymorphisms in the polynucleotide sequence are useful in
CC   the identification of individuals having a predisposition to acquire
CC   diseases resulting from a increased or decreased expression of their
CC   activity. Such molecules can be used to treat pancreatic cancer,
CC   dystrophic muscular diseases and or heart diseases. Polynucleotides of
CC   the invention are used in gene therapy. The present sequence is human
CC   heparanase-2AB splice variant protein
XX
SQ   Sequence 582 AA;

  Query Match             40.2%;  Score 1142.5;  DB 5;  Length 582;
  Best Local Similarity   43.4%;  Pred. No. 5.2e-104;
  Matches  249;  Conservative   81;  Mismatches  191;  Indels   53;  Gaps    9;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                  | |       : : :: ||  |: |:  |: :
Db          8 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 67
```

```
Qy          56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
               |||: :| ::  |  :|  | | :| |||||||||:||||| : ||| |    :| |
Db          68 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRADFLQFQNLRNPAKSRG 126

Qy         112 FEERSYWQSQVNQDI-----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                    |:      ||            ||     |||  :|: |   |  | ||:| :
Db         127 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAR-HPDVMLELQREKAAQMHLVLLKEQFSN 185

Qy         159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
                 |   :  |:| || ||:|||| ||| |||| |  :  ||||:|  || | :|| |||
Db         186 TNSNLILTARSLDKLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNI 245

Qy         219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
               |||||||||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db         246 SWELGNEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 305

Qy         278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
               :|  |:|  |  :|:||| | |::||     |||   :||     ::|: :|| :  |||
Db         306 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 365

Qy         338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
               |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db         366 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 425

Qy         398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
               |:||||||||||:|:|:| |||    | | :|:          |||:| ||||  |  |  |
Db         426 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 485

Qy         449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
                :||: ||||   | ::|     :| | :|||:| |  || |||||||  | |||| ||
Db         486 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 545

Qy         509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
               | |  :||| | :| :|  :  |||::|    ||
Db         546 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 579
```

RESULT 30
AAY97633
ID AAY97633 standard; protein; 538 AA.
XX
AC AAY97633;
XX
DT 20-APR-2001 (first entry)
XX
DE Human heparanase, hnhp1 pn9 form, protein sequence.
XX
KW Heparanase; hnhp1; wound healing; angiogenesis; restenosis; Scrape;
KW atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;
KW neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;
KW gene therapy; human.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 305
FT /note= "encoded by GAC"
XX
PN WO200100643-A2.
XX
PD 04-JAN-2001.
XX
PF 19-JUN-2000; 2000WO-IL000358.
XX
PR 25-JUN-1999; 99US-0140801P.
XX
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI Pecker I, Michal I, Itzhaki H;
XX
DR WPI; 2001-137930/14.
DR N-PSDB; AAA91098.
XX
PT New polynucleotides and polypeptides that are distantly homologous to
PT heparanase, useful in wound healing, as well as in gene therapy protocols
PT for angiogenesis, restenosis, atherosclerosis, or inflammation.
XX
PS Claim 10; Page 61-62; 67pp; English.
XX
CC This sequence represents a heparanase of the invention. The heparanase
CC DNA and protein sequences are useful in wound healing, angiogenesis,
CC restenosis, atherosclerosis, inflammation, pulmonary diseases,
CC neurodegenerative diseases (such as Scrape, Alzheimer's disease, and
CC Creutzfeldt-Jakob disease) or viral infections. The heparanase coding
CC sequence is particularly useful in gene therapy
XX
SQ Sequence 538 AA;

Query Match 39.1%; Score 1112.5; DB 4; Length 538;
Best Local Similarity 42.6%; Pred. No. 4.4e-101;
Matches 239; Conservative 81; Mismatches 160; Indels 81; Gaps 9;

```
Qy          20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
               |   |:||||                 | |       : : :: ||  |: |:  |: :
Db          18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy          56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
               |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db          78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSR- 135

Qy         112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                                    |   ||                    :| | :::      |:|
Db         136 -----------------GGPGPD-----------------YYLKNYEDA----RSLD 154

Qy         172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                || ||:|||| ||| |||| |  :  ||||:|  || | :|| ||||||||||||::
Db         155 KLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNISWELGNEPNNYRT 214

Qy         232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                     :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db         215 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 274

Qy         291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
               |:||| | |::||     |||   :||   : ::|: :|| :  ||||:||    :   |
Db         275 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSAQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 334

Qy         351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
               |    |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||:
Db         335 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 394

Qy         411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
               |:|:| |||    | | :|:          |||:| ||||  |  |  :||: ||||
Db         395 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 454

Qy         462 KYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
               | ::|     :| | :|||:| |  || ||||||||  | |||| ||| |  :||| | :
Db         455 KKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 514

Qy         522 LGLPAFSYSFFVIRNAKVAAC 542
               | :|  :  |||::|    ||
Db         515 LVIPPVTMGFFVVKNVNALAC 535
```

RESULT 31
AAE18327
ID AAE18327 standard; protein; 528 AA.
XX
AC AAE18327;
XX
DT 07-MAY-2002 (first entry)
XX
DE Human heparanase-2A splice variant protein.
XX
KW Human; heparanase-2A; Hep-2; wound healing; angiogenesis; restenosis;
KW atherosclerosis; neurodegenerative disease; inflammation; protamine;
KW viral infection; autoimmune lesion; renal failure; pancreatic cancer;

KW dystrophic muscular disease; heart disease; gene therapy; enzyme.
XX
OS Homo sapiens.
XX
PN WO200204645-A2.
XX
PD 17-JAN-2002.
XX
PF 12-JUL-2001; 2001WO-EP008094.
XX
PR 12-JUL-2000; 2000EP-00202442.
XX
PA (VLAA-) VLAAMS INTERUNIVERSITAIR INST BIOTECHNOG.
XX
PI David G, Duerr J;
XX
DR WPI; 2002-171719/22.
DR N-PSDB; AAD29204.
XX
PT Heparanase-2 polypeptides and polynucleotides, useful for useful in wound
PT healing, angiogenesis, and for treating restenosis, atherosclerosis,
PT inflammation, neurodegenerative diseases, and viral infections.
XX
PS Disclosure; Page 45-46; 54pp; English.
XX
CC The invention relates to human heparanase-2 (Hep-2) polypeptides and
CC polynucleotides. Heparanase-2 protein is useful in wound healing,
CC angiogenesis, restenosis, atherosclerosis, neurodegenerative diseases,
CC inflammation and viral infections, as well as in neutralising plasma
CC heparin as a potential replacement of protamine. Antiheparanase-2
CC antibodies may be used for immunodetection and diagnosis of
CC micrometastases, autoimmune lesions, renal failure in biopsy specimens,
CC plasma samples and body fluids. Molecules, which can agonise or
CC antagonise heparanase 2 catalytic activity may also be used as a
CC medicament. Polymorphisms in the polynucleotide sequence are useful in
CC the identification of individuals having a predisposition to acquire
CC diseases resulting from a increased or decreased expression of their
CC activity. Such molecules can be used to treat pancreatic cancer,
CC dystrophic muscular diseases and or heart diseases. Polynucleotides of
CC the invention are used in gene therapy. The present sequence is human
CC heparanase-2A splice variant protein
XX
SQ Sequence 528 AA;

Query Match 38.9%; Score 1106.5; DB 5; Length 528;
Best Local Similarity 42.4%; Pred. No. 1.7e-100;
Matches 238; Conservative 80; Mismatches 162; Indels 81; Gaps 9;

```
Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
                 |   |:||||                  | |       : : :: ||  |: |:  |: : 
Db          8 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 67

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
               |||: :| ::  |  :|  | | :| |||||||||:|||| : ||| |    :| |
Db         68 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRADFLQFQNLRNPAKSR- 125

Qy        112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                           |   ||                   :| | ::::     |:|
Db        126 ------------------GGPGPD------------------YYLKNYEDA----RSLD 144

Qy        172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                || ||:|||| ||| |||| |  :  ||||:|  || | :|| ||||||||||||::
Db        145 KLYNFADCSGLHLIFALNALRRNPNNSWNSSSALSLLKYSASKKYNISWELGNEPNNYRT 204

Qy        232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                 :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db        205 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 264

Qy        291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
               |:||| | |::||     |||   :||     ::|: :|| :  ||||:||    :   |
Db        265 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 324

Qy        351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
```

```
                |   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||||:
Db        325 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 384
...
Qy        411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
               |:|:| |||   | | :|:          |||:| ||||  |  |  | :||: ||||
Db        385 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 444

Qy        462 KYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
               | ::|     :| | :|||:| |  || |||||||  | |||| ||| |  :||| | :
Db        445 KKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 504

Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
               | :|  :  |||::|    ||
Db        505 LVIPPVTMGFFVVKNVNALAC 525
```

RESULT 32
AAB85216
ID AAB85216 standard; protein; 534 AA.
XX
AC AAB85216;
XX
DT 07-SEP-2001 (first entry)
XX
DE Heparanase-like protein Hpa2 splice variant #2.
XX
KW Heparanase; splice variant; homologue; heparanase-like protein; Hpa2;
KW cytostatic; neuroprotective; cerebroprotective; immunosuppressive;
KW antipsoriatic; nootropic; antiinflammatory; antiarthritic; antiasthmatic;
KW antidiabetic; antiarteriosclerotic; vulnerary.
XX
OS Homo sapiens.
XX
PN WO200146392-A2.
XX
PD 28-JUN-2001.
XX
PF 21-DEC-2000; 2000WO-GB004963.
XX
PR 22-DEC-1999; 99GB-00030392.
PR 07-APR-2000; 2000GB-00008713.
XX
PA (OXFO-) OXFORD GLYCOSCIENCES UK LTD.
XX
PI Mckenzie EA, Stamps AC, Terrett JA, Tyson KL;
XX
DR WPI; 2001-418056/44.
DR N-PSDB; AAH22672.
XX
PT Novel homologs of heparanase, present in three splice variants, useful
PT for identifying agents that modulate heparanase, useful in the treatment
PT and/or prophylaxis of abnormal levels of heparanase.
XX
PS Claim 1; Fig 2; 97pp; English.
XX
CC The invention provides a homologue to heparanase which is present in
CC three splice variants. The heparanase homologue polypeptide is useful in
CC the treatment of a human or non-human animal or for use in diagnosis.
CC Vectors comprising the heparanase homologue polynucleotides are useful in
CC the transformation or transfection of a prokaryotic or eukaryotic host.
CC The modulators of the polypeptide are useful in the manufacture of a
CC medicament for the treatment and/or prophylaxis of a condition/disease
CC associated with abnormal levels of the heparanase homologue, including
CC cancer, central nervous system (CNS) and neurodegenerative diseases,
CC cardiovascular diseases such as restenosis following angioplasty and
CC atherosclerosis, autoimmune diseases, psoriasis, lupus erythematosus,
CC allografts, inflammatory diseases, arthritis, vascular restenosis, tumour
CC growth and progression, asthma, Alzheimer's disease, diabetic
CC retinopathy, wound healing and inflammation. The polypeptide is also
CC useful in diagnosis and research. The present sequence represents the
CC amino acid sequence of the mid-sized splice variant of the heparanase-
CC like protein Hpa2 of the invention
XX

```
SQ   Sequence 534 AA;

  Query Match             33.0%;  Score 936.5;  DB 4;  Length 534;
  Best Local Similarity   37.8%;  Pred. No. 1.4e-83;
  Matches  217;  Conservative   78;  Mismatches  168;  Indels  111;  Gaps   12;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                 | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI-----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                 |:          ||          ||     |||  :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQF-- 193

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
                ::|||                    | :|
Db        194 ---SNTYS---------------------NLIL------------------------- 202

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
                    |||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        203 -----TEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 257

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
              :|  |:|  |  :|:||| | |::||     |||   :||     ::|: :|| :  |||
Db        258 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 317

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        318 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 377

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:|||||||||:|:|:| |||   | | :|:         |||:| ||||  |  |  |
Db        378 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 437

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
               :||: ||||   | ::|    :| | :|||:| |  || ||||||||  | |||| ||
Db        438 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 497

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |||::|    ||
Db        498 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 531


RESULT 33
ABP69310
ID   ABP69310 standard; protein; 534 AA.
XX
AC   ABP69310;
XX
DT   20-JAN-2003  (first entry)
XX
DE   Human polypeptide SEQ ID NO 1357.
XX
KW   Human; genome mapping; gene therapy; food supplement; virus; fungus;
KW   cell-proliferative disorder; neurodegenerative disease; bacterial;
KW   Parkinson's disease; Alzheimer's disease; autoimmune disease;
KW   multiple sclerosis; diabetes; genetic disorder; wound; burn; infection;
KW   arthritis; cytostatic; immunomodulator; nootropic; neuroprotective;
KW   antiparkinsonian; antidiabetic; immunosuppressive; dermatological;
KW   haemostatic; vulnerary; fungicide; antibacterial; virucide; protozoacide;
KW   antiarthritic.
XX
OS   Homo sapiens.
XX
PN   WO200270539-A2.
XX
PD   12-SEP-2002.
XX
PF   05-MAR-2002; 2002WO-US005095.
XX
PR   05-MAR-2001; 2001US-00799451.
XX
PA   (HYSE-) HYSEQ INC.
XX
PI   Tang YT,  Zhou P,  Goodrich RW,  Asundi V,  Zhang J,  Zhao QA,  Ren F;
PI   Xue AJ,  Yang Y,  Ma Y,  Yamazaki V,  Chen R,  Wang Z,  Ghosh M;
PI   Wehrman T,  Wang J,  Wang D,  Drmanac RT;
XX
DR   WPI; 2002-759812/82.
DR   N-PSDB; ABZ11527.
XX
PT   New polynucleotides comprising sequences assembled from expressed
PT   sequence tags (ESTs), useful for treating cell-proliferative,
PT   neurodegenerative, autoimmune, genetic, myeloid or lymphoid, or platelet
PT   or coagulation disorders.
XX
PS   Claim 9; SEQ ID NO 1357; 1012pp + Sequence Listing; English.
XX
CC   The invention relates to an isolated polynucleotide (I) comprising a
CC   nucleotide sequence selected from any of 948 sequences (ABZ11119-
CC   ABZ12066) or their mature protein coding portion, active domain coding
CC   protein or complementary sequences. The polynucleotides are useful for
CC   identifying expressed genes or for physical mapping of human genome. The
CC   encoded polypeptides (ABP68902-ABP69849) are useful as molecular weight
CC   markers, as a food supplement, for generating antibodies, in medical
CC   imaging, screening and diagnostic assays and for treating cell-
CC   proliferative disorders (cancer), neurodegenerative diseases (Parkinson's
CC   or Alzheimer's disease), autoimmune diseases (multiple sclerosis,
CC   diabetes, lupus) genetic disorders, myeloid or lymphoid disorders,
CC   platelet or coagulation disorders, wound, burns, incision, ulcers, liver
CC   or lung fibrosis, infections (bacterial, viral, fungal, parasitic),
CC   arthritis, etc. Note: The sequence data for this patent did not form part
CC   of the printed specification, but was obtained in electronic format
CC   directly from WIPO at ftp.wipo.int/pub/published_pct_sequences
XX
SQ   Sequence 534 AA;

  Query Match             33.0%;  Score 936.5;  DB 5;  Length 534;
  Best Local Similarity   37.8%;  Pred. No. 1.4e-83;
  Matches  217;  Conservative   78;  Mismatches  168;  Indels  111;  Gaps   12;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                 | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI-----------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                 |:          ||          ||     |||  :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQF-- 193

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
                ::|||                    | :|
Db        194 ---SNTYS---------------------NLIL------------------------- 202

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
                    |||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        203 -----TEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 257

Qy        278 MLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
              :|  |:|  |  :|:||| | |::||     |||   :||     ::|: :|| :  |||
Db        258 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 317

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        318 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 377

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:|||||||||:|:|:| |||   | | :|:         |||:| ||||  |  |  |
Db        378 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 437
```

```
Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
              :||: ||||   | ::|    :| | :|||:| |  || ||||||||  | |||| ||
Db        438 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 497

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              | |  :||| | :| :|  :  |||::|    ||
Db        498 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 531


RESULT 34
AAM50337
ID   AAM50337 standard; protein; 534 AA.
XX
AC   AAM50337;
XX
DT   04-FEB-2002  (first entry)
XX
DE   Human prepro-heparanase II.
XX
KW   Heparanase II; human; vulnerary; angiogenesis inhibitor;
KW   antiinflammatory; cytostatic; therapy; diagnosis.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1. .41
FT                   /label= Signal_peptide
FT   Protein         42. .534
FT                   /label= Mature_protein
FT                   /note= "specifically claimed in Claim 23(b)"
FT   Protein         42. .129
FT                   /label= 8_kDa_subunit
FT                   /note= "specifically claimed in Claim 23(c)"
FT   Modified-site   66. .68
FT                   /note= "O-phosphorylated by protein kinase C"
FT   Modified-site   97. .99
FT                   /note= "O-phosphorylated by protein kinase C"
FT   Modified-site   98. .100
FT                   /note= "O-phosphorylated by protein kinase C"
FT   Modified-site   116
FT                   /note= "Amidated"
FT   Protein         162. .534
FT                   /label= 50_kDa_subunit
FT                   /note= "specifically claimed in Claim 23(f)"
FT   Modified-site   217. .219
FT                   /note= "Asn is N-glycosylated"
FT   Modified-site   315
FT                   /note= "Amidated"
FT   Modified-site   334. .336
FT                   /note= "Asn is N-glycosylated"
FT   Modified-site   449. .451
FT                   /note= "O-phosphorylated by protein kinase C"
FT   Modified-site   458. .560
FT                   /note= "O-phosphorylated by protein kinase C"
XX
PN   WO200181569-A2.
XX
PD   01-NOV-2001.
XX
PF   17-APR-2001; 2001WO-US010804.
XX
PR   20-APR-2000; 2000US-0199072P.
XX
PA   (PHAA ) PHARMACIA & UPJOHN CO.
XX
PI   Heinrikson RL,  Bienkowski MJ;
XX
DR   WPI; 2002-041402/05.
DR   N-PSDB; AAI70705.
XX
PT   Novel heparanase II polypeptide useful for identifying agents with alter
PT   heparanase activity and for accelerating wound healing, blocking
PT   angiogenesis or inflammation.
XX
PS   Claim 23(a); Fig 1; 65pp; English.
XX
CC   The present sequence is that of novel human prepro-heparanase II, a
CC   paralogue of human heparanase I. The sequence was deduced from isolated
CC   cDNA clones obtained by database screening (see AAI70705) Heparanase II
CC   is a secreted protein that shows 43% identity at the amino acid level to
CC   heparanase I. The prepro-protein is processed to remove a 41-amino acid
CC   leader peptide, and further processed to remove internal amino acids,
CC   yielding the 8 kDa (amino acids 42-129) and 50 kDa (amino acid 162-534)
CC   subunits of the heparanase II enzyme. Heparanase I and II have a non-
CC   overlapping expression pattern in human tissues and each may serve tissue
CC   -specific functional roles. The invention provides heparanase II nucleic
CC   acids, vectors, host cells, polypeptides and antibodies. Polypeptides
CC   comprising amino acids 42-534, 42-129, 42-161, 130-534 and 162-534 of the
CC   present sequence, and nucleic acids encoding them, are specifically
CC   claimed. Heparanase II is useful for identifying an agent that alters
CC   heparanase activity. Such as agent is used in a claimed method for
CC   treating a disease state. Inhibiting heparanase II activity is useful for
CC   treating or preventing metastasis, cancer, CNS and neurodegenerative
CC   diseases, inflammation and cardiovascular disease such as restenosis
CC   following angioplasty and atherosclerosis. Heparanase II is useful for
CC   accelerating wound healing, blocking angiogenesis, degradation of heparin
CC   and neutralization of heparin's anticoagulant properties during surgery.
CC   Heparanase or an agent that enhances heparanase activity can also be
CC   infused into the vasculature to block accumulation and diapedesis of
CC   neutrophils at sites of inflammation with or without added domains to
CC   confer selectivity in delivery
XX
SQ   Sequence 534 AA;

  Query Match             33.0%;  Score 936.5;  DB 5;  Length 534;
  Best Local Similarity   37.8%;  Pred. No. 1.4e-83;
  Matches  217;  Conservative   78;  Mismatches  168;  Indels  111;  Gaps   12;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:|||                  | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:|||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI------------CKYGSIPPDVEEKLRLEWPYQEQL-LLREHYQK 158
                  |:      ||             ||      |||  :|: |   |  | ||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREKAAQMHLVLLKEQF-- 193

Qy        159 KFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNI 218
               ::|||                    | :|
Db        194 ---SNTYS--------------------NLIL-------------------------- 202

Qy        219 SWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAK 277
                  |||::       :||||||:|||||  ||:    :  | ||||::|:||:
Db        203 -----TEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIA 257

Qy        278 MLKSPLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGK 337
              :|  |:|  |  :|:|||  | |::||     |||   :||     ::|: :|| :  |||
Db        258 LLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGK 317

Qy        338 KVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDEN 397
              |:||    :   ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:|
Db        318 KIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQN 377

Qy        398 FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEG 448
              |:||||||||||:|:|:| |||    | | :|:          |||:| ||||  |  | |
Db        378 FNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRG 437

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
              :||: ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||
Db        438 SITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTL 497

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
```

```
Db        498 PELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 531


RESULT 35
AAB84664
ID   AAB84664 standard; protein; 492 AA.
XX
AC   AAB84664;
XX
DT   05-SEP-2001  (first entry)
XX
DE   Amino acid sequence of human heparanase-like polypeptide.
XX
KW   Human; heparanase-like polypeptide; gene therapy; cancer; angiogenesis;
KW   trauma; autoimmune disease; skin disease; cardiovascular disease;
KW   nervous system disease; inflammation; arthritis; genitalia;
KW   male fertility; erectile dysfunction.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 407
FT                   /note= "unspecified residue encoded by KCA"
XX
PN   WO200148161-A2.
XX
PD   05-JUL-2001.
XX
PF   18-DEC-2000; 2000WO-EP012909.
XX
PR   23-DEC-1999;   99EP-00125831.
XX
PA   (SCHD ) SCHERING AG.
XX
PI   Siemeister G,  Weiss B;
XX
DR   WPI; 2001-418259/44.
DR   N-PSDB; AAH28347.
XX
PT   Human Heparanase-like polynucleotide encoding polypeptides useful for
PT   modulating expression of the polypeptide and for treating cancer, cancer
PT   metastasis, aberrant angiogenesis by gene therapy technique.
XX
PS   Claim 9; Page 30; 30pp; English.
XX
CC   The present sequence represents a human heparanase-like polypeptide.
CC   Heparanase-like polynucleotides are useful as a source of probes, primers
CC   and antisense molecules, and in gene therapy. Heparanase-like
CC   polynucleotides and polypeptides are useful for treating several
CC   disorders e.g., cancer, cancer metastasis. The oligonucleotides are also
CC   useful as diagnostic markers for the diagnosis of disorder such as
CC   cancer, cancer metastasis and aberrant angiogenesis. They may also act as
CC   diagnostic markers for diagnosis of disorder such as cancer, cancer
CC   metastasis and aberrant angiogenesis. The heparanase polypeptides and
CC   polynucleotides are also useful for treating trauma, autoimmune diseases,
CC   skin diseases, cardiovascular diseases, nervous system diseases, and
CC   inflammation including arthritis. Since the polynucleotide is
CC   preferentially expressed in male genitalia, modulation of its expression
CC   and/or activity may be used for medical intervention in male genitalia
CC   function that is male fertility control, erectile dysfunction
XX
SQ   Sequence 492 AA;

  Query Match             32.6%;  Score 927.5;  DB 4;  Length 492;
  Best Local Similarity   39.3%;  Pred. No. 9.8e-83;
  Matches  208;  Conservative   74;  Mismatches  160;  Indels   87;  Gaps   10;

Qy         41 LDFFTQEPLHLVSPSFLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTD 100
Db         21 LDVSTKNPVRTVNENFLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTD 79

Qy        101 FLIF----DPKKESTFEERSYWQSQVNQDI-----------CKYGSIPPDVEEKLRLEW 144
Db         80 FLQFQNLRNPAKSRGGPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQ-HPDVMLELQREK 138

Qy        145 PYQEQL-LLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSN 203
Db        139 AAQMHLVLLKEQF-----SNTYS----------------------NLIL---------- 160

Qy        204 AQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAK 262
Db        161 -------------------TEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRAS 200

Qy        263 LYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISS 322
Db        201 LYGPNIGRPRKNVIALLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQ 260

Qy        323 VQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMR 382
Db        261 IRKIQKVVNTYTPGKKIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIR 320

Qy        383 QVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRV 433
Db        321 HSFFDHGYNHLVDQNFNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRI 380

Qy        434 YLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSV 493
Db        381 YAHCTNHHNHNYVRGSITLFIINLHRXRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSV 440

Qy        494 QLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSPFVIRNAKVAAC 542
Db        441 QLNGQPLVMVDDGTLPELKPRPLRAGRTLVIPPVTMGPYVVKNVNALAC 489


RESULT 36
AAY97634
ID   AAY97634 standard; protein; 480 AA.
XX
AC   AAY97634;
XX
DT   20-APR-2001  (first entry)
XX
DE   Human heparanase, hnhp1 pn5 form, protein sequence.
XX
KW   Heparanase; hnhp1; wound healing; angiogenesis; restenosis; Scrape;
KW   atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;
KW   neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;
KW   gene therapy; human.
XX
OS   Homo sapiens.
XX
PN   WO200100643-A2.
XX
PD   04-JAN-2001.
XX
PF   19-JUN-2000; 2000WO-IL000358.
XX
PR   25-JUN-1999;   99US-0140801P.
XX
PA   (INSI-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI   Pecker I,  Michal I,  Itzhaki H;
XX
DR   WPI; 2001-137930/14.
DR   N-PSDB; AAA91099.
XX
PT   New polynucleotides and polypeptides that are distantly homologous to
PT   heparanase, useful in wound healing, as well as in gene therapy protocols
PT   for angiogenesis, restenosis, atherosclerosis, or inflammation.
XX
PS   Claim 10; Page 63; 67pp; English.
XX
CC   This sequence represents a heparanase of the invention. The heparanase
CC   DNA and protein sequences are useful in wound healing, angiogenesis,
CC   restenosis, atherosclerosis, inflammation, pulmonary diseases,
```

```
CC   neurodegenerative diseases (such as Scrape, Alzheimer's disease, and
CC   Creutzfeldt-Jakob disease) or viral infections. The heparanase coding
CC   sequence is particularly useful in gene therapy
XX
SQ   Sequence 480 AA;

  Query Match             31.6%;  Score 897.5;  DB 4;  Length 480;
  Best Local Similarity   36.0%;  Pred. No. 9.1e-80;
  Matches  202;  Conservative   74;  Mismatches  146;  Indels  139;  Gaps    9;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                  | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSR- 135

Qy        112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                              |   ||                  :| | ::
Db        136 -----------------GGPGPD------------------YYLKNYE---------- 148

Qy        172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                                                                :|||::
Db        149 ------------------------------------------------DEPNNYRT 156

Qy        232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db        157 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 216

Qy        291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
              |:||| | |::||     |||   :||     ::|: :|| :  ||||:||    :   |
Db        217 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 276

Qy        351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
              |   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||||:
Db        277 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 336

Qy        411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
              |:|:| |||   | | :|:         |||:| ||||  |  |  | :||: ||||
Db        337 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 396

Qy        462 KYLRLPYPPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
              | ::|     :| | :|||:| |  || ||||||||  | |||| ||| |  :||| | :
Db        397 KKIKLAGTLRDKLVHQYLLQPYGQQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 456

Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
              | :|  :  |||::|    ||
Db        457 LVIPPVTMGFFVVKNVNALAC 477


RESULT 37
AAU07418
ID   AAU07418 standard; protein; 480 AA.
XX
AC   AAU07418;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Novel human extracellular matrix (ECM) protein #1.
XX
KW   Human; immunosuppressive; antiarthritic; antirheumatic; cytostatic;
KW   antiproliferative; cardiant; vasotropic; cerebroprotective; nootropic;
KW   neuroprotective; antibacterial; virucide; fungicide; ophthalmological;
KW   extracellular matrix; ECM; autoimmune disease; rheumatoid arthritis;
KW   hyperproliferative disorder; neoplasm; cardiovascular disorder;
KW   cardiac arrest; cerebrovascular disorder; cerebral ischaemia; infection;
KW   nervous system disorder; Alzheimer's disease; ocular disorder; sunburn;
KW   wound healing; food additive.
XX
OS   Homo sapiens.
XX
PN   WO200179253-A1.
XX
PD   25-OCT-2001.
XX
PF   11-APR-2001; 2001WO-US011643.
XX
PR   18-APR-2000; 2000US-0198123P.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Fiscella M,  Shi Y,  Ebner R,  Ruben SM;
XX
DR   WPI; 2001-611720/70.
DR   N-PSDB; AAS13843.
XX
PT   New nucleic acids encoding extracellular matrix polypeptides, for
PT   diagnosing, treating, preventing or ameliorating human disorders and
PT   disease, such as, autoimmune, hyperproliferative or cardiovascular
PT   disorders.
XX
PS   Claim 1; Page 292-293; 308pp; English.
XX
CC   The invention relates to novel isolated polynucleotides (I) encoding
CC   extracellular matrix (ECM) polypeptides. (I) and a polypeptide encoded by
CC   (I) are used to prevent, treat or ameliorate a medical condition in e.g.
CC   humans, mice, rabbits, goats, horses, cats, dogs, chickens or sheep. They
CC   are also used in diagnosing a pathological condition or susceptibility to
CC   a pathological condition. The antibodies to the polypeptides can also be
CC   used in alleviating symptoms associated with the disorders and in
CC   diagnostic immunoassays e.g. radioimmunoassays or enzyme linked
CC   immunosorbant assays (ELISA). Disorders which are diagnosed or treated
CC   include autoimmune diseases e.g. rheumatoid arthritis, hyperproliferative
CC   disorders e.g. neoplasms of the breast or liver, cardiovascular disorders
CC   e.g. cardiac arrest, cerebrovascular disorders e.g. cerebral ischaemia,
CC   angiogenesis, nervous system disorders e.g. Alzheimer's disease,
CC   infections caused by bacteria, viruses and fungi and ocular disorders
CC   e.g. corneal infection. The polypeptides can also be used to aid wound
CC   healing and epithelial cell proliferation, to prevent skin aging due to
CC   sunburn, to maintain organs before transplantation, for supporting cell
CC   culture of primary tissues, to regenerate tissues and in chemotaxis. The
CC   polypeptides can also be used as a food additive or preservative to
CC   increase or decrease storage capabilities. The present sequence
CC   represents the amino acid sequence of novel human extracellular matrix
CC   (ECM) protein #1
XX
SQ   Sequence 480 AA;

  Query Match             31.6%;  Score 897.5;  DB 4;  Length 480;
  Best Local Similarity   36.0%;  Pred. No. 9.1e-80;
  Matches  202;  Conservative   74;  Mismatches  146;  Indels  139;  Gaps    9;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                  | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSR- 135

Qy        112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                              |   ||                  :| | ::
Db        136 -----------------GGPGPD------------------YYLKNYE---------- 148

Qy        172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                                                                :|||::
Db        149 ------------------------------------------------DEPNNYRT 156

Qy        232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db        157 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 216

Qy        291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
              |:||| | |::||     |||   :||     ::|: :|| :  ||||:||    :   |
Db        217 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 276
```

```
Qy        351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
              |   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||||:
Db        277 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 336

Qy        411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
              |:|:| |||   | | :|:         |||:| ||||  |  |  | :||: ||||
Db        337 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 396

Qy        462 KYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
              | ::|     :| | :|||:| |  || |||||||  | |||| ||| |  :||| | :
Db        397 KKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 456

Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
              | :|  :  |||::|   ||
Db        457 LVIPPVTMGFFVVKNVNALAC 477


RESULT 38
AAB85217
ID   AAB85217 standard; protein; 480 AA.
XX
AC   AAB85217;
XX
DT   07-SEP-2001  (first entry)
XX
DE   Heparanase-like protein Hpa2 splice variant #3.
XX
KW   Heparanase; splice variant; homologue; heparanase-like protein; Hpa2;
KW   cytostatic; neuroprotective; cerebroprotective; immunosuppressive;
KW   antipsoriatic; nootropic; antiinflammatory; antiarthritic; antiasthmatic;
KW   antidiabetic; antiarteriosclerotic; vulnerary.
XX
OS   Homo sapiens.
XX
PN   WO200146392-A2.
XX
PD   28-JUN-2001.
XX
PF   21-DEC-2000; 2000WO-GB004963.
XX
PR   22-DEC-1999;   99GB-00030392.
PR   07-APR-2000; 2000GB-00008713.
XX
PA   (OXFO-) OXFORD GLYCOSCIENCES UK LTD.
XX
PI   Mckenzie EA,  Stamps AC,  Terrett JA,  Tyson KL;
XX
DR   WPI; 2001-418056/44.
DR   N-PSDB; AAH22673.
XX
PT   Novel homologs of heparanase, present in three splice variants, useful
PT   for identifying agents that modulate heparanase, useful in the treatment
PT   and/or prophylaxis of abnormal levels of heparanase.
XX
PS   Claim 1; Fig 3; 97pp; English.
XX
CC   The invention provides a homologue to heparanase which is present in
CC   three splice variants. The heparanase homologue polypeptide is useful in
CC   the treatment of a human or non-human animal or for use in diagnosis.
CC   Vectors comprising the heparanase homologue polynucleotides are useful in
CC   the transformation or transfection of a prokaryotic or eukaryotic host.
CC   The modulators of the polypeptide are useful in the manufacture of a
CC   medicament for the treatment and/or prophylaxis of a condition/disease
CC   associated with abnormal levels of the heparanase homologue, including
CC   cancer, central nervous system (CNS) and neurodegenerative diseases,
CC   cardiovascular diseases such as restenosis following angioplasty and
CC   atherosclerosis, autoimmune diseases, psoriasis, lupus erythematosus,
CC   allografts, inflammatory diseases, arthritis, vascular restenosis, tumour
CC   growth and progression, asthma, Alzheimer's disease, diabetic
CC   retinopathy, wound healing and inflammation. The polypeptide is also
CC   useful in diagnosis and research. The present sequence represents the
CC   amino acid sequence of the smallest splice variant of the heparanase-
CC   like protein Hpa2 of the invention
XX
SQ   Sequence 480 AA;

  Query Match             31.6%;  Score 897.5;  DB 4;  Length 480;
  Best Local Similarity   36.0%;  Pred. No. 9.1e-80;
  Matches  202;  Conservative   74;  Mismatches  146;  Indels  139;  Gaps    9;

Qy         20 PLGPLSPGAL-----------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:|||                 | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 PLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| ||||||||||:|||| :|||| |    :| |
Db         78 PLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSR- 135

Qy        112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                              |   ||                  :| | ::
Db        136 -----------------GGPGPD------------------YYLKNYE---------- 148

Qy        172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                                                                :|||::
Db        149 ----------------------------------------------------DEPNNYRT 156

Qy        232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                 :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db        157 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 216

Qy        291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
              |:||| | |::||      |||   :||     ::|: :|| :  ||||:||    :   |
Db        217 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 276

Qy        351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
              |   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||||:
Db        277 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 336

Qy        411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
              |:|:| |||   | | :|:         |||:| ||||  |  |  | :||: ||||
Db        337 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 396

Qy        462 KYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
              | ::|     :| | :|||:| |  || |||||||  | |||| ||| |  :||| | :
Db        397 KKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 456

Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
              | :|  :  |||::|   ||
Db        457 LVIPPVTMGFFVVKNVNALAC 477


RESULT 39
AAE18328
ID   AAE18328 standard; protein; 470 AA.
XX
AC   AAE18328;
XX
DT   07-MAY-2002  (first entry)
XX
DE   Human heparanase-2B splice variant protein.
XX
KW   Human; heparanase-2B; Hep-2; wound healing; angiogenesis; restenosis;
KW   atherosclerosis; neurodegenerative disease; inflammation; protamine;
KW   viral infection; autoimmune lesion; renal failure; pancreatic cancer;
KW   dystrophic muscular disease; heart disease; gene therapy; enzyme.
XX
OS   Homo sapiens.
XX
PN   WO200204645-A2.
XX
PD   17-JAN-2002.
XX
PF   12-JUL-2001; 2001WO-EP008094.
XX
PR   12-JUL-2000; 2000EP-00202442.
```

```
XX
PA   (VLAA-) VLAAMS INTERUNIVERSITAIR INST BIOTECHNOG.
XX
PI   David G,  Duerr J;
XX
DR   WPI; 2002-171719/22.
DR   N-PSDB; AAD29205.
XX
PT   Heparanase-2 polypeptides and polynucleotides, useful for useful in wound
PT   healing, angiogenesis, and for treating restenosis, atherosclerosis,
PT   inflammation, neurodegenerative diseases, and viral infections.
XX
PS   Disclosure; Page 49-50; 54pp; English.
XX
CC   The invention relates to human heparanase-2 (Hep-2) polypeptides and
CC   polynucleotides. Heparanase-2 protein is useful in wound healing,
CC   angiogenesis, restenosis, atherosclerosis, neurodegenerative diseases,
CC   inflammation and viral infections, as well as in neutralising plasma
CC   heparin as a potential replacement of protamine. Antiheparanase-2
CC   antibodies may be used for immunodetection and diagnosis of
CC   micrometastases, autoimmune lesions, renal failure in biopsy specimens,
CC   plasma samples and body fluids. Molecules, which can agonise or
CC   antagonise heparanase 2 catalytic activity may also be used as a
CC   medicament. Polymorphisms in the polynucleotide sequence are useful in
CC   the identification of individuals having a predisposition to acquire
CC   diseases resulting from a increased or decreased expression of their
CC   activity. Such molecules can be used to treat pancreatic cancer,
CC   dystrophic muscular diseases and or heart diseases. Polynucleotides of
CC   the invention are used in gene therapy. The present sequence is human
CC   heparanase-2B splice variant protein
XX
SQ   Sequence 470 AA;

  Query Match           31.4%;  Score 892.5;  DB 5;  Length 470;
  Best Local Similarity 35.8%;  Pred. No. 2.8e-79;
  Matches  201;  Conservative   74;  Mismatches  147;  Indels  139;  Gaps    9;

Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                    | |       : : :: ||  |: |:  |: :
Db          8 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 67

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::   |  :|  | | :| |||||||||:|||||  : ||| |    :| |
Db         68 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRADFLQFQNLRNPAKSR- 125

Qy        112 FEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVD 171
                                 |   ||                    :| | ::
Db        126 -----------------GGPGPD------------------YYLKNYE---------- 138

Qy        172 VLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLK 231
                                                              :|||::
Db        139 ------------------------------------------------DEPNNYRT 146

Qy        232 KADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVI 290
                 :||||||:|||||  ||:    :  | ||||::|:||:    :|  |:|  |  :
Db        147 MHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTV 206

Qy        291 DSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGG 350
              |:||| | |::||      |||   :||     ::|: :|| :  ||||:||    :   |
Db        207 DAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAG 266

Qy        351 GAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLF 410
              |   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||||||:
Db        267 GTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLY 326

Qy        411 KKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVT 461
              |:|:| |||   | | :|:         |||:| ||||  |  |  | :||: ||||
Db        327 KRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSR 386

Qy        462 KYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSS 521
              | ::|     :| | :|||:| |  || |||||||  | |||| ||| |  :||| | :
Db        387 KKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRT 446
```

```
Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
                | :|  :  |||::|    ||
Db        447 LVIPPVTMGFFVVKNVNALAC 467


RESULT 40
AAU07423
ID   AAU07423 standard; protein; 439 AA.
XX
AC   AAU07423;
XX
DT   18-DEC-2001  (first entry)
XX
DE   Human heparanase-like protein.
XX
KW   Human; immunosuppressive; antiarthritic; antirheumatic; cytostatic;
KW   antiproliferative; cardiant; vasotropic; cerebroprotective; nootropic;
KW   neuroprotective; antibacterial; virucide; fungicide; ophthalmological;
KW   extracellular matrix; ECM; autoimmune disease; rheumatoid arthritis;
KW   hyperproliferative disorder; neoplasm; cardiovascular disorder;
KW   cardiac arrest; cerebrovascular disorder; cerebral ischaemia; infection;
KW   nervous system disorder; Alzheimer's disease; ocular disorder; sunburn;
KW   wound healing; food additive; heparanase.
XX
OS   Homo sapiens.
XX
PN   WO200179253-A1.
XX
PD   25-OCT-2001.
XX
PF   11-APR-2001; 2001WO-US011643.
XX
PR   18-APR-2000; 2000US-0198123P.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Fiscella M,  Shi Y,  Ebner R,  Ruben SM;
XX
DR   WPI; 2001-611720/70.
XX
PT   New nucleic acids encoding extracellular matrix polypeptides, for
PT   diagnosing, treating, preventing or ameliorating human disorders and
PT   disease, such as, autoimmune, hyperproliferative or cardiovascular
PT   disorders.
XX
PS   Disclosure; Page 13-14; 308pp; English.
XX
CC   The invention relates to novel isolated polynucleotides (I) encoding
CC   extracellular matrix (ECM) polypeptides. (I) and a polypeptide encoded by
CC   (I) are used to prevent, treat or ameliorate a medical condition in e.g.
CC   humans, mice, rabbits, goats, horses, cats, dogs, chickens or sheep. They
CC   are also used in diagnosing a pathological condition or susceptibility to
CC   a pathological condition. The antibodies to the polypeptides can also be
CC   used in alleviating symptoms associated with the disorders and in
CC   diagnostic immunoassays e.g. radioimmunoassays or enzyme linked
CC   immunosorbant assays (ELISA). Disorders which are diagnosed or treated
CC   include autoimmune diseases e.g. rheumatoid arthritis, hyperproliferative
CC   disorders e.g. neoplasms of the breast or liver, cardiovascular disorders
CC   e.g. cardiac arrest, cerebrovascular disorders e.g. cerebral ischaemia,
CC   angiogenesis, nervous system disorders e.g. Alzheimer's disease,
CC   infections caused by bacteria, viruses and fungi and ocular disorders
CC   e.g. corneal infection. The polypeptides can also be used to aid wound
CC   healing and epithelial cell proliferation, to prevent skin aging due to
CC   sunburn, to maintain organs before transplantation, for supporting cell
CC   culture of primary tissues, to regenerate tissues and in chemotaxis. The
CC   polypeptides can also be used as a food additive or preservative to
CC   increase or decrease storage capabilities. The present sequence
CC   represents the amino acid sequence of human heparanase-like protein
XX
SQ   Sequence 439 AA;

  Query Match           31.4%;  Score 891.5;  DB 4;  Length 439;
  Best Local Similarity 36.9%;  Pred. No. 3.1e-79;
```

```
  Matches  198;  Conservative   74;  Mismatches  148;  Indels  117;  Gaps    8;

Qy         22 GPLSPGALPRPA--QAQDVVDLDFFTQEPLHLVSPSFLSVTIDANLATDPRFLILLGSPK 79
Db          1 GDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNENFLSLQLDPSIIHD-GWLDFLSSKR 59

Qy         80 LRTLARGLSPAYLRFGGTKTDFLIF----DPKKESTFEERSYWQSQVNQDICKYGSIPPD 135
Db         60 LVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSR------------------GGPGPD 100

Qy        136 VEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTA 195
Db        101 ----------------YYLKNYE--------------------------------- 107

Qy        196 DLQWNSSNAQLLLDYCSSKGYNISWELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK 255
Db        108 -------------------------DEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQP 139

Qy        256 -STFKNAKLYGPDVGQPRRKTAKMLKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPD 314
Db        140 IRIYSRASLYGPNIGRPRKNVIALLDGFMKVAGSTVDAVTWQHCYIDGRVVKVMDFLKTR 199

Qy        315 VLDIFISSVQKVFQVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSAR 374
Db        200 LLDTLSDQIRKIQKVVNTYTPGKKIWLEGVVTTSAGGTNNLSDSYAAGFLWLNTLGMLAN 259

Qy        375 MGIEVVMRQVFFGAGNYHLVDENFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRR----- 429
Db        260 QGIDVVIRHSFFDHGYNHLVDQNFNPLPDYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGR 319

Qy        430 ----KLRVYLHCTNTDNPRYKEGDLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGP 485
Db        320 VIRDKLRIYAHCTNHHNHNYVRGSITLFIINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQ 379

Qy        486 HGLLSKSVQLNGLTLKMVDDQTLPPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
Db        380 EGLKSKSVQLNGQPLVMVDDGTLPELKPRPLRAGRTLVIPPVTMGFFVVKNVNALAC 436


RESULT 41
AAM50383
ID   AAM50383 standard; protein; 331 AA.
XX
AC   AAM50383;
XX
DT   18-FEB-2002  (first entry)
XX
DE   Human heparanase II.
XX
KW   Heparanase II; human; cytostatic; vasotropic; antiarteriosclerotic;
KW   antiinflammatory; vulnerary; immunosuppressive; dermatological; cardiant;
KW   nootropic; neuroprotective; cancer; metastasis; vaccine; therapy.
XX
OS   Homo sapiens.
XX
PN   WO200177341-A2.
XX
PD   18-OCT-2001.
XX
PF   05-APR-2001; 2001WO-EP003878.
XX
PR   11-APR-2000; 2000GB-00008912.
XX
PA   (JANC ) JANSSEN PHARM NV.
XX
PI   Smets GMC,  Sprengel JJ;
XX
DR   WPI; 2002-041294/05.
DR   N-PSDB; AAI70845.
XX
PT   Novel nucleic acid molecule encoding heparanase II polypeptide, useful
PT   for treating cancer, angiogenesis, angioplasty-induced restenosis,
PT   atherosclerosis, inflammation and arteriosclerosis, and for wound
PT   healing.
XX
PS   Claim 1; Fig 2; 56pp; English.
XX
CC   The present sequence is that of novel human heparanase II, as deduced
CC   from an isolated cDNA clone (see AAI70845). The amino acid sequence shows
CC   41% homology to the C-terminal portion of human heparanase I. Tissue
CC   distribution by means of electronic expression profiling suggested an
CC   association of heparanase II with tumour tissue. The invention provides
CC   mammalian (including human) heparanase II polypeptides and
CC   polynucleotides, as well as vectors and host cells, and a method for
CC   identifying modulators of heparanase II activity which may be used to
CC   treat diseases associated with elevated or reduced heparanase activity.
CC   An enhancer of heparanase II activity can be used in the treatment of
CC   trauma, autoimmune diseases, skin diseases, cardiomuscular diseases and
CC   diseases of the nervous system, including Alzheimer's disease (all
CC   claimed). An inhibitor of heparanase II activity can be used to treat
CC   cancer, cancer metastasis, angiogenesis, angioplasty-induced restenosis,
CC   atherosclerosis and inflammation, and for promoting wound healing (all
CC   claimed)
XX
SQ   Sequence 331 AA;

  Query Match             27.7%;  Score 788;  DB 5;  Length 331;
  Best Local Similarity   46.6%;  Pred. No. 3.9e-69;
  Matches  153;  Conservative   53;  Mismatches  112;  Indels   10;  Gaps    2;

Qy        225 EPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKMLKSFL 283
Db          1 EPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIGRPRKNVIALLDGFM 60

Qy        284 KAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVESTRPGKKVWLGE 343
Db         61 KVAGSTVDAVTWQHCYIDGRVVKVMDFLKTRLLDTLSDQIRKIQKVVNTYTPGKKIWLEG 120

Qy        344 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPD 403
Db        121 VVTTSAGGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPD 180

Qy        404 YWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYA 454
Db        181 YWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFI 240

Qy        455 INLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEK 514
Db        241 INLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPR 300

Qy        515 PLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
Db        301 PLRAGRTLVIPPVTMGFYVVKNVNALAC 328


RESULT 42
AAB31469
ID   AAB31469 standard; protein; 488 AA.
XX
AC   AAB31469;
XX
DT   20-APR-2001  (first entry)
XX
DE   Amino acid sequence of a native hyaluronidase designated manillase.
XX
KW   Leech; hyaluronidase; manillase; myocardial disease; infarction;
KW   cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KW   acute myocardial ischemia; eye disorder; congestion; circulation;
KW   angiogenesis; anti-thrombotic; anti-tumour.
XX
OS   Hirudinaria manillensis.
XX
PN   WO200077221-A1.
XX
PD   21-DEC-2000.
XX
```

PF 06-JUN-2000; 2000WO-EP005181.
XX
PR 12-JUN-1999; 99EP-00111468.
XX
PA (MERE) MERCK PATENT GMBH.
XX
PI Kordowicz M, Guessow D, Hofmann U, Pacuszka T, Gardas A;
XX
DR WPI; 2001-071276/08.
XX
PT Novel hyaluronidase or manillase protein isolated from the leech species
PT Hirudinaria manillensis having biological activity of hyaluronidase
PT useful for treating myocardial, cardiovascular and thrombotic disorders.
XX
PS Claim 5; Fig 7; 72pp; English.
XX
CC The present sequence represents a native leech hyaluronidase protein. The
CC hyaluronidase protein is designated manillase. The activity of the
CC protein is not influenced in its activity by heparin. The protein has a
CC molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has
CC four glycoforms. The manillase polypeptides and polynucleotides are
CC useful in the manufacture of medicaments for treating myocardial,
CC cardiovascular and thrombotic disorder and tumours. They are useful in
CC human or veterinary therapy as dispersal agents, and are useful as an
CC adjunct of other substances e.g. in the field of chemotherapy of tumours,
CC for treatment of disorders and diseases with respect to acute myocardial
CC ischemia or infarction, for treatment of glaucoma and other eye
CC disorders, to improve the circulation of physiological fluids in the eye,
CC for treatment of skin and tissue grafts to remove congestion and improve
CC circulation, as drug delivery system through the skin, membranes, other
CC tissue, as an agent to remove the hyaluronic acid capsule surrounding
CC certain pathogenic certain tumours and cancerous tissues, and as an
CC inhibitor of angiogenesis which can be used as anti-thrombotic and anti-
CC tumour agent
XX
SQ Sequence 488 AA;

Query Match 23.3%; Score 663; DB 4; Length 488;
Best Local Similarity 34.8%; Pred. No. 2e-56;
Matches 179; Conservative 78; Mismatches 191; Indels 66; Gaps 21;

```
Qy         52 VSPSFLSVTIDANLATDPRFL---ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKK 108
Db         16 VSESFHGVAFDASLFS-PKGLWSFVDITSPKLFKLLEGLSPGYFRVGGTFANWLFFD--- 71

Qy        109 ESTFEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRS 168
Db         72 ---LDENNKW-----KDYWAFKDKTPETATITR-RWLFRKQ------------NNLKKE 109

Qy        169 SVDVLYTFANCSGLDLIFGLNALLRTA-------DLQWNSSNAQLLLDYCSSKGY--NIS 219
Db        110 TEDDLVKLTKGSKMRLLFDLNAEVRTGYEIGKKMTSTWDSSEAEKLFKYCVSKGYGDNID 169

Qy        220 WELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKM 278
Db        170 WELGNEPD---HTSAHNLTGKQVGEDFKALHKVLEKYPTLNKGSLVGPDVGW---MGVSY 223

Qy        279 LKSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVE-----ST 333
Db        224 VKGLADGAGDLVTAFTLHQYYFDGNTSDVSTYLDA----TYFKKLQQLFDKVKDVLKNSQ 279

Qy        334 RPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHL 393
Db        280 HKDKPLWLGETSSGYNSGTKDVSDRYVSGFLTLDKLGLSAANNVKVVIRQTIYN-GYYGL 338

Qy        394 VDEN-FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDN----PRYKEG 448
Db        339 LDKNTLEPNPDYWLMHVHNSLVGNTVFKVDV-SDPTNKARVYAQCTKTNSKHTQSRYYKG 397

Qy        449 DLTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTL 508
Db        398 SLTIFALNVGDEDVTLKID-QYGGKKIYSYILTPEGGQ-LTSQKVLLNGKELKLVSDQ-L 454

Qy        509 PPLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
Db        455 PELNANESK--TSFTLSPKTFGFFVVSDANVEAC 486
```

RESULT 43
AAB31470
ID AAB31470 standard; protein; 488 AA.
XX
AC AAB31470;
XX
DT 20-APR-2001 (first entry)
XX
DE Amino acid sequence of hyaluronidase (manillase) enzyme clone 21.
XX
KW Leech; hyaluronidase; manillase; myocardial disease; infarction;
KW cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KW acute myocardial ischemia; eye disorder; congestion; circulation;
KW angiogenesis; anti-thrombotic; anti-tumour.
XX
OS Hirudinaria manillensis.
XX
FH Key Location/Qualifiers
FT Misc-difference 223
FT /label= Asn, Tyr
XX
PN WO200077221-A1.
XX
PD 21-DEC-2000.
XX
PF 06-JUN-2000; 2000WO-EP005181.
XX
PR 12-JUN-1999; 99EP-00111468.
XX
PA (MERE) MERCK PATENT GMBH.
XX
PI Kordowicz M, Guessow D, Hofmann U, Pacuszka T, Gardas A;
XX
DR WPI; 2001-071276/08.
DR N-PSDB; AAF24835.
XX
PT Novel hyaluronidase or manillase protein isolated from the leech species
PT Hirudinaria manillensis having biological activity of hyaluronidase
PT useful for treating myocardial, cardiovascular and thrombotic disorders.
XX
PS Claim 13; Fig 8; 72pp; English.
XX
CC The present sequence represents a leech hyaluronidase enzyme. The
CC hyaluronidase protein is designated manillase. The activity of the
CC protein is not influenced in its activity by heparin. The protein has a
CC molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has
CC four glycoforms. The manillase polypeptides and polynucleotides are
CC useful in the manufacture of medicaments for treating myocardial,
CC cardiovascular and thrombotic disorder and tumours. They are useful in
CC human or veterinary therapy as dispersal agents, and are useful as an
CC adjunct of other substances e.g. in the field of chemotherapy of tumours,
CC for treatment of disorders and diseases with respect to acute myocardial
CC ischemia or infarction, for treatment of glaucoma and other eye
CC disorders, to improve the circulation of physiological fluids in the eye,
CC for treatment of skin and tissue grafts to remove congestion and improve
CC circulation, as drug delivery system through the skin, membranes, other
CC tissue, as an agent to remove the hyaluronic acid capsule surrounding
CC certain pathogenic certain tumours and cancerous tissues, and as an
CC inhibitor of angiogenesis which can be used as anti-thrombotic and anti-
CC tumour agent
XX
SQ Sequence 488 AA;

Query Match 22.7%; Score 645; DB 4; Length 488;
Best Local Similarity 34.9%; Pred. No. 1.2e-54;
Matches 179; Conservative 76; Mismatches 192; Indels 66; Gaps 22;

```
Qy         53 SPSFLSVTIDANLATDPRFL---ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKE 109
```

```
Db         17 SGSFLGVAFDASLFS-PKGLWSFVDITSPKLFKLLEGLSPGYFRVGGTFANWLFFD---- 71

Qy        110 STFEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSS 169

Db         72 --LDENNKW-----KDYWAFKDKTPETATITR-RWLFRK--------QNNLKKETF---- 111

Qy        170 VDVLYTFANCSGLDLIFGLNALLRTA-------DLQWNSSNAQLLLDYCSSKGY--NISW 220

Db        112 -DNLVKLTKGSKMRLLFDLNAEVRTGYEIGKKMTSTWDSSEAEKLFKYCVSKGYGDNIDW 170

Qy        221 ELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKML 279

Db        171 ELGNEPD---HTSAHNLTEKQVGEDFKALHKVLEKYPTLNKGSLVGPDVGW---MGVSXV 224

Qy        280 KSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVV-----ESTR 334

Db        225 KGLADEAGDHVTAFTLHQYYFDGNTSDVSIYLDA----TYFKKLQQLFDKVKDVLKDSPH 280

Qy        335 PGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLV 394

Db        281 KDEPLWLGETSSGYNSGTEDVSDRYVSGFLTLDKLGLSAANNVKVVIRQTIYN-GYYGLL 339

Qy        395 DEN-FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDN----PRYKEGD 449

Db        340 DKNTLEPNPDYWLMHVHNSLVGNTVFKVDV-SDPTNKARVYAQCTKTNSKHTQSRYYKGS 398

Qy        450 LTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLP 509

Db        399 LTIFALNVGDGDVTLKIG-QYSGKKIYSYILTPEGGQ-LTSQKVLLNGKELNLVSDQ-LP 455

Qy        510 PLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542

Db        456 ELNADESK--TSFTLSPKTFGFFVVSDANVEAC 486
```

RESULT 44
AAB31472
ID AAB31472 standard; protein; 488 AA.
XX
AC AAB31472;
XX
DT 20-APR-2001 (first entry)
XX
DE Amino acid sequence of hyaluronidase (manillase) enzyme clone 31.
XX
KW Leech; hyaluronidase; manillase; myocardial disease; infarction;
KW cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KW acute myocardial ischemia; eye disorder; congestion; circulation;
KW angiogenesis; anti-thrombotic; anti-tumour.
XX
OS Hirudinaria manillensis.
XX
PN WO200077221-A1.
XX
PD 21-DEC-2000.
XX
PF 06-JUN-2000; 2000WO-EP005181.
XX
PR 12-JUN-1999; 99EP-00111468.
XX
PA (MERE) MERCK PATENT GMBH.
XX
PI Kordowicz M, Guessow D, Hofmann U, Pacuszka T, Gardas A;
XX
DR WPI; 2001-071276/08.
DR N-PSDB; AAF24837.
XX
PT Novel hyaluronidase or manillase protein isolated from the leech species
PT Hirudinaria manillensis having biological activity of hyaluronidase
PT useful for treating myocardial, cardiovascular and thrombotic disorders.
XX
PS Claim 13; Fig 10; 72pp; English.
XX
CC The present sequence represents a leech hyaluronidase enzyme. The
CC hyaluronidase protein is designated manillase. The activity of the
CC protein is not influenced in its activity by heparin. The protein has a
CC molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has
CC four glycoforms. The manillase polypeptides and polynucleotides are
CC useful in the manufacture of medicaments for treating myocardial,
CC cardiovascular and thrombotic disorder and tumours. They are useful in
CC human or veterinary therapy as dispersal agents, and are useful as an
CC adjunct of other substances e.g. in the field of chemotherapy of tumours,
CC for treatment of disorders and diseases with respect to acute myocardial
CC ischemia or infarction, for treatment of glaucoma and other eye
CC disorders, to improve the circulation of physiological fluids in the eye,
CC for treatment of skin and tissue grafts to remove congestion and improve
CC circulation, as drug delivery system through the skin, membranes, other
CC tissue, as an agent to remove the hyaluronic acid capsule surrounding
CC certain pathogenic certain tumours and cancerous tissues, and as an
CC inhibitor of angiogenesis which can be used as anti-thrombotic and anti-
CC tumour agent
XX
SQ Sequence 488 AA;

Query Match 22.6%; Score 642; DB 4; Length 488;
Best Local Similarity 34.3%; Pred. No. 2.5e-54;
Matches 176; Conservative 76; Mismatches 197; Indels 64; Gaps 21;

```
Qy         52 VSPSFLSVTIDANLAT--DPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKE 109

Db         16 VSESFHGVAFDASLFSPKGPWSFVNITSPKLFKLLEGLSPGYFRVGGTFANWLFFD---- 71

Qy        110 STFEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSS 169

Db         72 --LDENNKW-----KDYWAFKDKTPETATITR-RWLFRK--------QNNLKKETF---- 111

Qy        170 VDVLYTFANCSGLDLIFGLNALLRT-------ADLQWNSSNAQLLLDYCSSKGY--NISW 220

Db        112 -DDLVKLTKGSKMRLLFDLNAEVRTGYEIGKKTTSTWDSSEAEKLFKYCVSKGYGDNIDW 170

Qy        221 ELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKML 279

Db        171 ELGNEPD---HTSAHNLTEKQVGEDFKALHKVLEKYPTLNKGSPVGPDVGW---MGVSYV 224

Qy        280 KSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVVE-----STR 334

Db        225 KGLADGAGDLVTAFTLHQYYFDGNTSDVSTYLDAS----YFKKLQQLFDKVKDVLKNSPH 280

Qy        335 PGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLV 394

Db        281 KDKPLWLGETSSGCNSGTKDVSDRYVSGFLTLDKLGLSAANNVKVVIRQTIYN-GYYGLL 339

Qy        395 DEN-FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDNP----RYKEGD 449

Db        340 DKNTLEPNPDYWLMHVHNSLVGNTVFKVDV-GDPTNKTRVYAQCTKTNSKHTQGKYYKGS 398

Qy        450 LTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLP 509

Db        399 LTIFALNVGDEEVTLKID-QYGGKKIYSYILTPEGGQ-LTSQKVLLNGKELNLVSDQ-LP 455

Qy        510 PLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542

Db        456 ELNADESK--TSFTLSPKTFGFFVVSDANVEAC 486
```

RESULT 45
AAB31471
ID AAB31471 standard; protein; 488 AA.
XX
AC AAB31471;
XX
DT 20-APR-2001 (first entry)
XX
DE Amino acid sequence of hyaluronidase (manillase) enzyme clone 31.
XX

KW Leech; hyaluronidase; manillase; myocardial disease; infarction;
KW cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KW acute myocardial ischemia; eye disorder; congestion; circulation;
KW angiogenesis; anti-thrombotic; anti-tumour.
XX
OS Hirudinaria manillensis.
XX
FH Key Location/Qualifiers
FT Misc-difference 450
FT /label= Val, Met
XX
PN WO200077221-A1.
XX
PD 21-DEC-2000.
XX
PF 06-JUN-2000; 2000WO-EP005181.
XX
PR 12-JUN-1999; 99EP-00111468.
XX
PA (MERE) MERCK PATENT GMBH.
XX
PI Kordowicz M, Guessow D, Hofmann U, Pacuszka T, Gardas A;
XX
DR WPI; 2001-071276/08.
DR N-PSDB; AAF24836.
XX
PT Novel hyaluronidase or manillase protein isolated from the leech species
PT Hirudinaria manillensis having biological activity of hyaluronidase
PT useful for treating myocardial, cardiovascular and thrombotic disorders.
XX
PS Claim 13; Fig 9; 72pp; English.
XX
CC The present sequence represents a leech hyaluronidase enzyme. The
CC hyaluronidase protein is designated manillase. The activity of the
CC protein is not influenced in its activity by heparin. The protein has a
CC molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has
CC four glycoforms. The manillase polypeptides and polynucleotides are
CC useful in the manufacture of medicaments for treating myocardial,
CC cardiovascular and thrombotic disorder and tumours. They are useful in
CC human or veterinary therapy as dispersal agents, and are useful as an
CC adjunct of other substances e.g. in the field of chemotherapy of tumours,
CC for treatment of disorders and diseases with respect to acute myocardial
CC ischemia or infarction, for treatment of glaucoma and other eye
CC disorders, to improve the circulation of physiological fluids in the eye,
CC for treatment of skin and tissue grafts to remove congestion and improve
CC circulation, as drug delivery system through the skin, membranes, other
CC tissue, as an agent to remove the hyaluronic acid capsule surrounding
CC certain pathogenic certain tumours and cancerous tissues, and as an
CC inhibitor of angiogenesis which can be used as anti-thrombotic and anti-
CC tumour agent
XX
SQ Sequence 488 AA;

Query Match 21.9%; Score 622; DB 4; Length 488;
Best Local Similarity 34.3%; Pred. No. 2.4e-52;
Matches 176; Conservative 75; Mismatches 196; Indels 66; Gaps 22;

```
Qy          53 SPSFLSVTIDANLATDPRFL---ILLGSPKLRTLARGLSPAYLRFGGTKTDFLIFDPKKE 109
               | ||  |  ||:| : |: |   : : ||||  |  |||| | | |||  : | ||
Db          17 SESFHGVAFDASLFS-PKGLWSFVDITSPKLFKLLEGLSPGYFRVGGTFANRLFFD---- 71

Qy         110 STFEERSYWQSQVNQDICKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKKFKNSTYSRSS 169
                 :| : |    :|   :    |:    |  | :::          |   |  |:
Db          72 --LDENNKW-----KDYWAFKDKTPETATITR-RWLFRK--------QNNLKKETF---- 111

Qy         170 VDVLYTFANCSGLDLIFGLNALLRTA-------DLQWNSSNAQLLLDYCSSKGY--NISW 220
                | |      | : |:| ||| :||          |:|| |: |  || ||||  || |
Db         112 -DNLVKLTKGSKMRLLFDLNAEVRTGYEIGKKMTSTWDSSEAEKLFKYCVSKGYGDNIDW 170

Qy         221 ELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKML 279
               ||||  |:     :   :   |:|||:  |||:| | |     | |||||         :
Db         171 ELGNGPD---HTSAHNLTEKQVGEDFKALHKVLEKYPTLNKGSLVGPDVGW---MGVSYV 224

Qy         280 KSFLKAGGEVIDSVTWHHYYLNGRTATREDFLNPDVLDIFISSVQKVFQVV-----ESTR 334
               |  |: : : | | || :| |:    :|:      :   :|::|  |     :|
Db         225 KGLADEAGDHVTAFTLHQYYFDGNTSDVSIYLDA----TYFKKLQQLFDKVKDVLKDSPH 280

Qy         335 PGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLV 394
                 | :|||||| |  |   :|| : :||: |||||||   ::||:||  : :| |  :
Db         281 KDKPLWLGETSSGYNSGTEDVSDRYVSGFLTLDKLGLSAANNVKVVIRQTIY-SGYYGPL 339

Qy         395 DEN-FDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRVYLHCTNTDN----PRYKEGD 449
               |:|  :| |||||  :   |||  |    |     | |||  || |::     || :|
Db         340 DKNTLEPNPDYWLMHVHNSLVGNTVFKVDV-SDPTNKARVYAQCTKTNSKHTQSRYYKGS 398

Qy         450 LTLYAINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLP 509
               ||::|:|: :    |::   :| |::  |:| | |   | |: | |||  | :  || ||
Db         399 LTIFALNVGDEDVTLKIG-QYSGKKIYSYILTPEGGQ-LTSQKVLLNGKELNLXSDQ-LP 455

Qy         510 PLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
                 |    :  :|  |   :: |||: :| | ||
Db         456 QLNADESK--TSFTLSPKTFGFFVVSDANVEAC 486
```

RESULT 46
AAM99905
ID AAM99905 standard; protein; 214 AA.
XX
AC AAM99905;
XX
DT 07-JAN-2002 (first entry)
XX
DE Human excretory related polypeptide SEQ ID NO 642.
XX
KW Human; nootropic; neuroprotective; cytostatic; dermatological; virucide;
KW immunosuppressive; antiinflammatory; anti-HIV; antibacterial; vulnerary;
KW antiparkinsonian; antisickling; antianaemic; antiarthritic; cancer;
KW antirheumatic; hepatotropic; cerebroprotective; antiinflammatory;
KW antiallergic; antidiabetic; antiulcer; anticonvulsant; antifungal;
KW antiparasitic; cardiant; immune disorder; cardiovascular disorder;
KW neurological disease; infection; nephrotropic; gene therapy; vaccine;
KW excretory system.
XX
OS Homo sapiens.
XX
PN WO200155313-A2.
XX
PD 02-AUG-2001.
XX
PF 17-JAN-2001; 2001WO-US001323.
XX
PR 31-JAN-2000; 2000US-0179065P.
PR 04-FEB-2000; 2000US-0180628P.
PR 24-FEB-2000; 2000US-0184664P.
PR 02-MAR-2000; 2000US-0186350P.
PR 16-MAR-2000; 2000US-0189874P.
PR 17-MAR-2000; 2000US-0190076P.
PR 18-APR-2000; 2000US-0198123P.
PR 19-MAY-2000; 2000US-0205515P.
PR 07-JUN-2000; 2000US-0209467P.
PR 28-JUN-2000; 2000US-0214886P.
PR 30-JUN-2000; 2000US-0215135P.
PR 07-JUL-2000; 2000US-0216647P.
PR 07-JUL-2000; 2000US-0216880P.
PR 11-JUL-2000; 2000US-0217487P.
PR 11-JUL-2000; 2000US-0217496P.
PR 14-JUL-2000; 2000US-0218290P.
PR 26-JUL-2000; 2000US-0220963P.
PR 26-JUL-2000; 2000US-0220964P.
PR 14-AUG-2000; 2000US-0224518P.
PR 14-AUG-2000; 2000US-0224519P.
PR 14-AUG-2000; 2000US-0225213P.
PR 14-AUG-2000; 2000US-0225214P.
PR 14-AUG-2000; 2000US-0225266P.
PR 14-AUG-2000; 2000US-0225267P.
PR 14-AUG-2000; 2000US-0225268P.

PR 14-AUG-2000; 2000US-0225270P.
PR 14-AUG-2000; 2000US-0225447P.
PR 14-AUG-2000; 2000US-0225757P.
PR 14-AUG-2000; 2000US-0225758P.
PR 14-AUG-2000; 2000US-0225759P.
PR 18-AUG-2000; 2000US-0226279P.
PR 22-AUG-2000; 2000US-0226681P.
PR 22-AUG-2000; 2000US-0226868P.
PR 22-AUG-2000; 2000US-0227182P.
PR 23-AUG-2000; 2000US-0227009P.
PR 30-AUG-2000; 2000US-0228924P.
PR 01-SEP-2000; 2000US-0229287P.
PR 01-SEP-2000; 2000US-0229343P.
PR 01-SEP-2000; 2000US-0229344P.
PR 01-SEP-2000; 2000US-0229345P.
PR 05-SEP-2000; 2000US-0229509P.
PR 05-SEP-2000; 2000US-0229513P.
PR 06-SEP-2000; 2000US-0230437P.
PR 06-SEP-2000; 2000US-0230438P.
PR 08-SEP-2000; 2000US-0231242P.
PR 08-SEP-2000; 2000US-0231243P.
PR 08-SEP-2000; 2000US-0231244P.
PR 08-SEP-2000; 2000US-0231413P.
PR 08-SEP-2000; 2000US-0231414P.
PR 08-SEP-2000; 2000US-0232080P.
PR 08-SEP-2000; 2000US-0232081P.
PR 12-SEP-2000; 2000US-0231968P.
PR 14-SEP-2000; 2000US-0232397P.
PR 14-SEP-2000; 2000US-0232398P.
PR 14-SEP-2000; 2000US-0232399P.
PR 14-SEP-2000; 2000US-0232400P.
PR 14-SEP-2000; 2000US-0232401P.
PR 14-SEP-2000; 2000US-0233063P.
PR 14-SEP-2000; 2000US-0233064P.
PR 14-SEP-2000; 2000US-0233065P.
PR 21-SEP-2000; 2000US-0234223P.
PR 21-SEP-2000; 2000US-0234274P.
PR 25-SEP-2000; 2000US-0234997P.
PR 25-SEP-2000; 2000US-0234998P.
PR 26-SEP-2000; 2000US-0235484P.
PR 27-SEP-2000; 2000US-0235834P.
PR 27-SEP-2000; 2000US-0235836P.
PR 29-SEP-2000; 2000US-0236327P.
PR 29-SEP-2000; 2000US-0236367P.
PR 29-SEP-2000; 2000US-0236368P.
PR 29-SEP-2000; 2000US-0236369P.
PR 29-SEP-2000; 2000US-0236370P.
PR 02-OCT-2000; 2000US-0236802P.
PR 02-OCT-2000; 2000US-0237037P.
PR 02-OCT-2000; 2000US-0237038P.
PR 02-OCT-2000; 2000US-0237039P.
PR 02-OCT-2000; 2000US-0237040P.
PR 13-OCT-2000; 2000US-0239935P.
PR 13-OCT-2000; 2000US-0239937P.
PR 20-OCT-2000; 2000US-0240960P.
PR 20-OCT-2000; 2000US-0241221P.
PR 20-OCT-2000; 2000US-0241785P.
PR 20-OCT-2000; 2000US-0241786P.
PR 20-OCT-2000; 2000US-0241787P.
PR 20-OCT-2000; 2000US-0241808P.
PR 20-OCT-2000; 2000US-0241809P.
PR 20-OCT-2000; 2000US-0241826P.
PR 01-NOV-2000; 2000US-0244617P.
PR 08-NOV-2000; 2000US-0246474P.
PR 08-NOV-2000; 2000US-0246475P.
PR 08-NOV-2000; 2000US-0246476P.
PR 08-NOV-2000; 2000US-0246477P.
PR 08-NOV-2000; 2000US-0246478P.
PR 08-NOV-2000; 2000US-0246523P.
PR 08-NOV-2000; 2000US-0246524P.
PR 08-NOV-2000; 2000US-0246525P.
PR 08-NOV-2000; 2000US-0246526P.
PR 08-NOV-2000; 2000US-0246527P.
PR 08-NOV-2000; 2000US-0246528P.
PR 08-NOV-2000; 2000US-0246532P.
PR 08-NOV-2000; 2000US-0246609P.
PR 08-NOV-2000; 2000US-0246610P.
PR 08-NOV-2000; 2000US-0246611P.
PR 08-NOV-2000; 2000US-0246613P.
PR 17-NOV-2000; 2000US-0249207P.
PR 17-NOV-2000; 2000US-0249208P.
PR 17-NOV-2000; 2000US-0249209P.
PR 17-NOV-2000; 2000US-0249210P.
PR 17-NOV-2000; 2000US-0249211P.
PR 17-NOV-2000; 2000US-0249212P.
PR 17-NOV-2000; 2000US-0249213P.
PR 17-NOV-2000; 2000US-0249214P.
PR 17-NOV-2000; 2000US-0249215P.
PR 17-NOV-2000; 2000US-0249216P.
PR 17-NOV-2000; 2000US-0249217P.
PR 17-NOV-2000; 2000US-0249218P.
PR 17-NOV-2000; 2000US-0249244P.
PR 17-NOV-2000; 2000US-0249245P.
PR 17-NOV-2000; 2000US-0249264P.
PR 17-NOV-2000; 2000US-0249265P.
PR 17-NOV-2000; 2000US-0249297P.
PR 17-NOV-2000; 2000US-0249299P.
PR 17-NOV-2000; 2000US-0249300P.
PR 01-DEC-2000; 2000US-0250160P.
PR 01-DEC-2000; 2000US-0250391P.
PR 05-DEC-2000; 2000US-0251030P.
PR 05-DEC-2000; 2000US-0251988P.
PR 05-DEC-2000; 2000US-0256719P.
PR 06-DEC-2000; 2000US-0251479P.
PR 08-DEC-2000; 2000US-0251856P.
PR 08-DEC-2000; 2000US-0251868P.
PR 08-DEC-2000; 2000US-0251869P.
PR 08-DEC-2000; 2000US-0251989P.
PR 08-DEC-2000; 2000US-0251990P.
PR 11-DEC-2000; 2000US-0254097P.
PR 05-JAN-2001; 2001US-0259678P.
XX
PA (HUMA-) HUMAN GENOME SCI INC.
XX
PI Rosen CA, Barash SC, Ruben SM;
XX
DR WPI; 2001-465569/50.
DR N-PSDB; AAI98878.
XX
PT Isolated nucleic acid molecule encoding excretory system antigen is used
PT in preventing, treating or ameliorating a medical condition.
XX
PS Claim 11; SEQ ID NO 642; 574pp + Sequence Listing; English.
XX
CC The invention relates to novel excretory system related human
CC polynucleotides (AAI98567-AAI99503) and the encoded proteins (AAM99594-
CC AAM99913) useful for preventing, treating or ameliorating medical
CC conditions e.g. by protein or gene therapy, espeically disorders related
CC to the excretory system. The genes are isolated from a range of human
CC tissues disclosed in the specification. The nucleic acids, proteins,
CC antibodies and (ant)agonists are useful in the diagnosis, treatment and
CC prevention of: (a) cancer, e.g. breast and ovarian cancer and other
CC cancers of the adrenal gland, bone, bone marrow, breast, gastrointestinal
CC tract, liver, lung, or urogenital; (b) immune disorders e.g. Addison's
CC disease, allergies, autoimmune haemolytic anaemia, autoimmune
CC thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis,
CC rheumatoid arthritis and ulcerative colitis; (c) cardiovascular disorders
CC such as myocardial ischaemias; (d) wound healing; (e) neurological
CC diseases e.g. cerebral anoxia and epilepsy; and (f) infectious diseases
CC such as viral, bacterial, fungal and parasitic infections. Note: The
CC sequence data for this patent did not form part of the printed
CC specification, but was obtained in electronic format directly from WIPO
CC at ftp.wipo.int/pub/published_pct_sequences
XX
SQ Sequence 214 AA;

```
  Query Match          18.6%;  Score 528.5;  DB 4;  Length 214;
  Best Local Similarity  51.4%;  Pred. No. 1.2e-43;
  Matches  107;  Conservative   29;  Mismatches   61;  Indels   11;  Gaps    2;

Qy        344 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPD 403
              |:||  ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||
Db          6 TTSA--GGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPD  63

Qy        404 YWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYA 454
              ||||||:|:|:| |||   | | :|:         |||:| ||||  |  |  | :||:
Db         64 YWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFI 123

Qy        455 INLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEK 514
              ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||| |  :
Db        124 INLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPR 183

Qy        515 PLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              ||| | :| :|  :  |||::|   ||
Db        184 PLRAGRTLVIPPVTMGFFVVKNVNALAC 211
```

RESULT 47
AAM43704
ID AAM43704 standard; protein; 214 AA.
XX
AC AAM43704;
XX
DT 24-OCT-2001 (first entry)
XX
DE Human bladder antigen, SEQ ID NO: 98.
XX
KW Human; bladder antigen; cytostatic; immunosuppressive; nootropic;
KW neuroprotective; antiviral; antiallergic; hepatotropic; antidiabetic;
KW antiinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial;
KW antifungal; antiparasitic; cardiant; gene therapy; cancer;
KW immune disorder; cardiovascular disorder; wound healing; infection;
KW neurological disease.
XX
OS Homo sapiens.
XX
PN WO200159064-A2.
XX
PD 16-AUG-2001.
XX
PF 17-JAN-2001; 2001WO-US001342.
XX
PR 31-JAN-2000; 2000US-0179065P.
PR 04-FEB-2000; 2000US-0180628P.
PR 24-FEB-2000; 2000US-0184664P.
PR 02-MAR-2000; 2000US-0186350P.
PR 16-MAR-2000; 2000US-0189874P.
PR 17-MAR-2000; 2000US-0190076P.
PR 18-APR-2000; 2000US-0198123P.
PR 19-MAY-2000; 2000US-0205515P.
PR 07-JUN-2000; 2000US-0209467P.
PR 28-JUN-2000; 2000US-0214886P.
PR 30-JUN-2000; 2000US-0215135P.
PR 07-JUL-2000; 2000US-0216647P.
PR 07-JUL-2000; 2000US-0216880P.
PR 11-JUL-2000; 2000US-0217487P.
PR 11-JUL-2000; 2000US-0217496P.
PR 14-JUL-2000; 2000US-0218290P.
PR 26-JUL-2000; 2000US-0220963P.
PR 26-JUL-2000; 2000US-0220964P.
PR 14-AUG-2000; 2000US-0224518P.
PR 14-AUG-2000; 2000US-0224519P.
PR 14-AUG-2000; 2000US-0225213P.
PR 14-AUG-2000; 2000US-0225214P.
PR 14-AUG-2000; 2000US-0225266P.
PR 14-AUG-2000; 2000US-0225267P.
PR 14-AUG-2000; 2000US-0225268P.
PR 14-AUG-2000; 2000US-0225270P.
PR 14-AUG-2000; 2000US-0225447P.
PR 14-AUG-2000; 2000US-0225757P.
PR 14-AUG-2000; 2000US-0225758P.
PR 14-AUG-2000; 2000US-0225759P.
PR 18-AUG-2000; 2000US-0226279P.
PR 22-AUG-2000; 2000US-0226681P.
PR 22-AUG-2000; 2000US-0226868P.
PR 22-AUG-2000; 2000US-0227182P.
PR 23-AUG-2000; 2000US-0227009P.
PR 30-AUG-2000; 2000US-0228924P.
PR 01-SEP-2000; 2000US-0229287P.
PR 01-SEP-2000; 2000US-0229343P.
PR 01-SEP-2000; 2000US-0229344P.
PR 01-SEP-2000; 2000US-0229345P.
PR 05-SEP-2000; 2000US-0229509P.
PR 05-SEP-2000; 2000US-0229513P.
PR 06-SEP-2000; 2000US-0230437P.
PR 06-SEP-2000; 2000US-0230438P.
PR 08-SEP-2000; 2000US-0231242P.
PR 08-SEP-2000; 2000US-0231243P.
PR 08-SEP-2000; 2000US-0231244P.
PR 08-SEP-2000; 2000US-0231413P.
PR 08-SEP-2000; 2000US-0231414P.
PR 08-SEP-2000; 2000US-0232080P.
PR 08-SEP-2000; 2000US-0232081P.
PR 12-SEP-2000; 2000US-0231968P.
PR 14-SEP-2000; 2000US-0232397P.
PR 14-SEP-2000; 2000US-0232398P.
PR 14-SEP-2000; 2000US-0232399P.
PR 14-SEP-2000; 2000US-0232400P.
PR 14-SEP-2000; 2000US-0232401P.
PR 14-SEP-2000; 2000US-0233063P.
PR 14-SEP-2000; 2000US-0233064P.
PR 14-SEP-2000; 2000US-0233065P.
PR 21-SEP-2000; 2000US-0234223P.
PR 21-SEP-2000; 2000US-0234274P.
PR 25-SEP-2000; 2000US-0234997P.
PR 25-SEP-2000; 2000US-0234998P.
PR 26-SEP-2000; 2000US-0235484P.
PR 27-SEP-2000; 2000US-0235834P.
PR 27-SEP-2000; 2000US-0235836P.
PR 29-SEP-2000; 2000US-0236327P.
PR 29-SEP-2000; 2000US-0236367P.
PR 29-SEP-2000; 2000US-0236368P.
PR 29-SEP-2000; 2000US-0236369P.
PR 29-SEP-2000; 2000US-0236370P.
PR 02-OCT-2000; 2000US-0236802P.
PR 02-OCT-2000; 2000US-0237037P.
PR 02-OCT-2000; 2000US-0237038P.
PR 02-OCT-2000; 2000US-0237039P.
PR 02-OCT-2000; 2000US-0237040P.
PR 13-OCT-2000; 2000US-0239935P.
PR 13-OCT-2000; 2000US-0239937P.
PR 20-OCT-2000; 2000US-0240960P.
PR 20-OCT-2000; 2000US-0241221P.
PR 20-OCT-2000; 2000US-0241785P.
PR 20-OCT-2000; 2000US-0241786P.
PR 20-OCT-2000; 2000US-0241787P.
PR 20-OCT-2000; 2000US-0241808P.
PR 20-OCT-2000; 2000US-0241809P.
PR 20-OCT-2000; 2000US-0241826P.
PR 01-NOV-2000; 2000US-0244617P.
PR 08-NOV-2000; 2000US-0246474P.
PR 08-NOV-2000; 2000US-0246475P.
PR 08-NOV-2000; 2000US-0246476P.
PR 08-NOV-2000; 2000US-0246477P.
PR 08-NOV-2000; 2000US-0246478P.
PR 08-NOV-2000; 2000US-0246523P.
PR 08-NOV-2000; 2000US-0246524P.
PR 08-NOV-2000; 2000US-0246525P.
PR 08-NOV-2000; 2000US-0246526P.
PR 08-NOV-2000; 2000US-0246527P.
PR 08-NOV-2000; 2000US-0246528P.
PR 08-NOV-2000; 2000US-0246532P.

```
PR   08-NOV-2000; 2000US-0246609P.
PR   08-NOV-2000; 2000US-0246610P.
PR   08-NOV-2000; 2000US-0246611P.
PR   08-NOV-2000; 2000US-0246613P.
PR   17-NOV-2000; 2000US-0249207P.
PR   17-NOV-2000; 2000US-0249208P.
PR   17-NOV-2000; 2000US-0249209P.
PR   17-NOV-2000; 2000US-0249210P.
PR   17-NOV-2000; 2000US-0249211P.
PR   17-NOV-2000; 2000US-0249212P.
PR   17-NOV-2000; 2000US-0249213P.
PR   17-NOV-2000; 2000US-0249214P.
PR   17-NOV-2000; 2000US-0249215P.
PR   17-NOV-2000; 2000US-0249216P.
PR   17-NOV-2000; 2000US-0249217P.
PR   17-NOV-2000; 2000US-0249218P.
PR   17-NOV-2000; 2000US-0249244P.
PR   17-NOV-2000; 2000US-0249245P.
PR   17-NOV-2000; 2000US-0249264P.
PR   17-NOV-2000; 2000US-0249265P.
PR   17-NOV-2000; 2000US-0249297P.
PR   17-NOV-2000; 2000US-0249299P.
PR   17-NOV-2000; 2000US-0249300P.
PR   01-DEC-2000; 2000US-0250160P.
PR   01-DEC-2000; 2000US-0250391P.
PR   05-DEC-2000; 2000US-0251030P.
PR   05-DEC-2000; 2000US-0251988P.
PR   05-DEC-2000; 2000US-0256719P.
PR   06-DEC-2000; 2000US-0251479P.
PR   08-DEC-2000; 2000US-0251856P.
PR   08-DEC-2000; 2000US-0251868P.
PR   08-DEC-2000; 2000US-0251869P.
PR   08-DEC-2000; 2000US-0251989P.
PR   08-DEC-2000; 2000US-0251990P.
PR   11-DEC-2000; 2000US-0254097P.
PR   05-JAN-2001; 2001US-0259678P.
XX
PA   (HUMA-) HUMAN GENOME SCI INC.
XX
PI   Rosen CA,  Barash SC,  Ruben SM;
XX
DR   WPI; 2001-514652/56.
DR   N-PSDB; AAI64065.
XX
PT   Forty five bladder related polynucleotides, useful in the prevention,
PT   treatment and diagnosis of cancer, immune disorders, cardiovascular
PT   disorders and neurological diseases.
XX
PS   Claim 11; SEQ ID NO 98; 482pp + Sequence Listing; English.
XX
CC   The invention relates to forty five novel bladder related
CC   polynucleotides. The polynucleotides and the polypeptides that they
CC   encode are useful in the diagnosis, treatment and prevention of: cancer,
CC   particularly breast and ovarian cancer, and other cancers of the adrenal
CC   gland, bone, bone marrow, breast, gastrointestinal tract, liver, lung, or
CC   urogenital system; immune disorders such as Addison's disease, allergies,
CC   autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus,
CC   Crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative
CC   colitis; cardiovascular disorders such as myocardial ischaemias; wound
CC   healing; neurological diseases such as cerebral anoxia and epilepsy; and
CC   infectious diseases such as viral, bacterial, fungal and parasitic
CC   infections. Numerous examples of each type of disorder are given in the
CC   specification. The polypeptides can also be used as a food additive or
CC   preservative to increase or decrease storage capabilities. The
CC   polynucleotides are useful for chromosome identification. They are also
CC   useful as probes for diagnosing or treating a disorder related to the
CC   female reproductive system, particularly breast and/or ovary cancer. The
CC   present sequence is a novel bladder antigen provided in the invention.
CC   Note: The sequence data for this patent did not form part of the printed
CC   specification, but was obtained in electronic format directly from WIPO
CC   at ftp.wipo.int/pub/published_pct_sequences
XX
SQ   Sequence 214 AA;
```

```
  Query Match             18.6%;  Score 528.5;  DB 4;  Length 214;
  Best Local Similarity   51.4%;  Pred. No. 1.2e-43;
  Matches  107;  Conservative   29;  Mismatches   61;  Indels   11;  Gaps    2;

Qy        344 TSSAYGGGAPLLSDTFAAGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLVDENFDPLPD 403
              |:||  ||   |||::||||:||: ||: |  ||:||:|  ||  |  ||||:||:||||
Db          6 TTSA--GGTNNLSDSYAAGFLWLNTLGMLANQGIDVVIRHSFFDHGYNHLVDQNFNPLPD 63

Qy        404 YWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLYA 454
              ||||||:|:|:| |||   | | :|:         |||:| ||||  |  |  | :||:
Db         64 YWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHNHNYVRGSITLFI 123

Qy        455 INLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSKSVQLNGLTLKMVDDQTLPPLMEK 514
              ||||   | ::|     :| | :|||:| |  || ||||||||  | |||| ||| |  :
Db        124 INLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKSVQLNGQPLVMVDDGTLPELKPR 183

Qy        515 PLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              ||| | :| :|  :  |||::|    ||
Db        184 PLRAGRTLVIPPVTMGFFVVKNVNALAC 211


RESULT 48
AAG65963
ID   AAG65963 standard; protein; 156 AA.
XX
AC   AAG65963;
XX
DT   11-FEB-2002  (first entry)
XX
DE   Human heparanase-like enzyme polypeptide.
XX
KW   HLE; heparanase-like enzyme; cytostatic; vasotropic; antiatherosclerotic;
KW   antiinflammatory; nootropic; neuroprotective; virucide; antibacterial;
KW   protozoacide; vulnerary; gene therapy; antisense therapy; human.
XX
OS   Homo sapiens.
XX
PN   WO200172973-A2.
XX
PD   04-OCT-2001.
XX
PF   22-FEB-2001; 2001WO-EP001997.
XX
PR   24-FEB-2000; 2000US-0184660P.
PR   27-NOV-2000; 2000US-0252913P.
XX
PA   (FARB ) BAYER AG.
XX
PI   Ramakrishnan S;
XX
DR   WPI; 2001-639227/73.
DR   N-PSDB; AAI67040.
XX
PT   New human heparanase-like enzyme polypeptide and polynucleotide for
PT   regulating extracellular matrix degradation and treating metastatic
PT   cancer, atherosclerosis, neurodegenerative diseases and pathogenic
PT   infections.
XX
PS   Claim 1; Fig 6; 82pp; English.
XX
CC   The invention provides polynucleotides encoding heparanase-like enzyme
CC   (HLE) polypeptides. The HLE polypeptides can be expressed by standard
CC   recombinant methodology. The HLE modulators are useful for regulating
CC   extracellular matrix degradation, to suppress metastatic activity of
CC   malignant cells, to enhance extracellular matrix degradation during
CC   development and to regulate tumour angiogenesis. HLE is useful for
CC   regulating degradation of the extracellular matrix for the treatment of
CC   various diseases, to develop diagnostic assays for these diseases and to
CC   provide new tools for basic research in medicine and biology. HLE is
CC   useful for developing new drugs to inhibit tumour cell metastasis,
CC   inflammation and autoimmunity, to modulate bioavailability of heparin-
CC   binding growth factors, cellular responses to heparin-binding growth
```

```
CC   factors and cytokines, cell interaction with plasma lipoproteins,
CC   cellular susceptibility to viral, protozoan, and bacterial infections and
CC   disintegration of neurodegenerative plaques. HLE and regulators of HLE
CC   are useful for treating wound healing, angiogenesis, restenosis,
CC   atherosclerosis, inflammation, neurodegenerative diseases such as
CC   Creutzfeldt-Jakob diseases, Scrapie and Alzheimer's diseases and viral,
CC   bacterial and protozoan infections. HLE can also be used to neutralize
CC   plasma heparin, as a potential replacement of protamine. HLE is useful
CC   for producing antibodies specific for the polypeptide, which can be
CC   applied for immunodetection and diagnosis of micrometastases, autoimmune
CC   lesions, and renal failure in biopsy specimens, plasma samples and body
CC   fluids. The agents identified by the screening assays are useful in
CC   animal models to determine the efficacy, toxicity or side effects of
CC   treatment with the agent and to determine mechanism of action of the
CC   agent. Antisense oligonucleotides are useful for modulating HLE gene
CC   expression. The present sequence represents a human HLE polypeptide
XX
SQ   Sequence 156 AA;

  Query Match             11.9%;  Score 338.5;  DB 4;  Length 156;
  Best Local Similarity   46.4%;  Pred. No. 6e-25;
  Matches   71;  Conservative   20;  Mismatches   49;  Indels   13;  Gaps    2;

Qy        403 DYWLSLLFKKLVGTKVLMASVQGSKRR---------KLRVYLHCTNTDNPRYKEGDLTLY 453
              |||||||:|:|:| |||   | | :|:         |||:| ||||     |  | :||:
Db          1 DYWLSLLYKRLIGPKVLAVHVAGLQRKPRPGRVIRDKLRIYAHCTNHHKHNYVRGSITLF 60

Qy        454 AINLHNVTKYLRLPYPFSNKQVDKYLLRPLGPHGLLSK----SVQLNGLTLKMVDDQTLP 509
              ||||   | ::|     :| | :|||:| |  || ||    ||||||  | |||| |||
Db         61 IINLHRSRKKIKLAGTLRDKLVHQYLLQPYGQEGLKSKYVPTSVQLNGQPLVMVDDGTLP 120

Qy        510 PLMEKPLRPGSSLGLPAFSYSFFVIRNAKVAAC 542
              |  :||| | :| :|  :  |:|::|    ||
Db        121 ELKPRPLRAGRTLVIPPVTMGFYVVKNVNALAC 153


RESULT 49
AAG13479
ID   AAG13479 standard; protein; 256 AA.
XX
AC   AAG13479;
XX
DT   17-OCT-2000  (first entry)
XX
DE   Arabidopsis thaliana protein fragment SEQ ID NO: 12989.
XX
KW   Protein identification; signal transduction pathway; metabolic pathway;
KW   hybridisation assay; genetic mapping; gene expression control; promoter;
KW   termination sequence.
XX
OS   Arabidopsis thaliana.
XX
PN   EP1033405-A2.
XX
PD   06-SEP-2000.
XX
PF   25-FEB-2000; 2000EP-00301439.
XX
PR   25-FEB-1999;   99US-0121825P.
PR   05-MAR-1999;   99US-0123180P.
PR   09-MAR-1999;   99US-0123548P.
PR   23-MAR-1999;   99US-0125788P.
PR   25-MAR-1999;   99US-0126264P.
PR   29-MAR-1999;   99US-0126785P.
PR   01-APR-1999;   99US-0127462P.
PR   06-APR-1999;   99US-0128234P.
PR   08-APR-1999;   99US-0128714P.
PR   16-APR-1999;   99US-0129845P.
PR   19-APR-1999;   99US-0130077P.
PR   21-APR-1999;   99US-0130449P.
PR   23-APR-1999;   99US-0130510P.
PR   23-APR-1999;   99US-0130891P.
PR   28-APR-1999;   99US-0131449P.
PR   30-APR-1999;   99US-0132048P.
PR   30-APR-1999;   99US-0132407P.
PR   04-MAY-1999;   99US-0132484P.
PR   05-MAY-1999;   99US-0132485P.
PR   06-MAY-1999;   99US-0132486P.
PR   06-MAY-1999;   99US-0132487P.
PR   07-MAY-1999;   99US-0132863P.
PR   11-MAY-1999;   99US-0134256P.
PR   14-MAY-1999;   99US-0134218P.
PR   14-MAY-1999;   99US-0134219P.
PR   14-MAY-1999;   99US-0134221P.
PR   14-MAY-1999;   99US-0134370P.
PR   18-MAY-1999;   99US-0134768P.
PR   19-MAY-1999;   99US-0134941P.
PR   20-MAY-1999;   99US-0135124P.
PR   21-MAY-1999;   99US-0135353P.
PR   24-MAY-1999;   99US-0135629P.
PR   25-MAY-1999;   99US-0136021P.
PR   27-MAY-1999;   99US-0136392P.
PR   28-MAY-1999;   99US-0136782P.
PR   01-JUN-1999;   99US-0137222P.
PR   03-JUN-1999;   99US-0137528P.
PR   04-JUN-1999;   99US-0137502P.
PR   07-JUN-1999;   99US-0137724P.
PR   08-JUN-1999;   99US-0138094P.
PR   10-JUN-1999;   99US-0138540P.
PR   10-JUN-1999;   99US-0138847P.
PR   14-JUN-1999;   99US-0139119P.
PR   16-JUN-1999;   99US-0139452P.
PR   16-JUN-1999;   99US-0139453P.
PR   17-JUN-1999;   99US-0139492P.
PR   18-JUN-1999;   99US-0139454P.
PR   18-JUN-1999;   99US-0139455P.
PR   18-JUN-1999;   99US-0139456P.
PR   18-JUN-1999;   99US-0139457P.
PR   18-JUN-1999;   99US-0139458P.
PR   18-JUN-1999;   99US-0139459P.
PR   18-JUN-1999;   99US-0139460P.
PR   18-JUN-1999;   99US-0139461P.
PR   18-JUN-1999;   99US-0139462P.
PR   18-JUN-1999;   99US-0139463P.
PR   18-JUN-1999;   99US-0139750P.
PR   18-JUN-1999;   99US-0139763P.
PR   21-JUN-1999;   99US-0139817P.
PR   22-JUN-1999;   99US-0139899P.
PR   23-JUN-1999;   99US-0140353P.
PR   23-JUN-1999;   99US-0140354P.
PR   24-JUN-1999;   99US-0140695P.
PR   28-JUN-1999;   99US-0140823P.
PR   29-JUN-1999;   99US-0140991P.
PR   30-JUN-1999;   99US-0141287P.
PR   01-JUL-1999;   99US-0141842P.
PR   01-JUL-1999;   99US-0142154P.
PR   02-JUL-1999;   99US-0142055P.
PR   06-JUL-1999;   99US-0142390P.
PR   08-JUL-1999;   99US-0142803P.
PR   09-JUL-1999;   99US-0142920P.
PR   12-JUL-1999;   99US-0142977P.
PR   13-JUL-1999;   99US-0143542P.
PR   14-JUL-1999;   99US-0143624P.
PR   15-JUL-1999;   99US-0144005P.
PR   16-JUL-1999;   99US-0144085P.
PR   16-JUL-1999;   99US-0144086P.
PR   19-JUL-1999;   99US-0144325P.
PR   19-JUL-1999;   99US-0144331P.
PR   19-JUL-1999;   99US-0144332P.
PR   19-JUL-1999;   99US-0144333P.
PR   19-JUL-1999;   99US-0144334P.
PR   19-JUL-1999;   99US-0144335P.
PR   20-JUL-1999;   99US-0144352P.
PR   20-JUL-1999;   99US-0144632P.
PR   20-JUL-1999;   99US-0144884P.
PR   21-JUL-1999;   99US-0144814P.
```

PR 21-JUL-1999; 99US-0145086P.
PR 21-JUL-1999; 99US-0145088P.
PR 22-JUL-1999; 99US-0145085P.
PR 22-JUL-1999; 99US-0145087P.
PR 22-JUL-1999; 99US-0145089P.
PR 22-JUL-1999; 99US-0145192P.
PR 23-JUL-1999; 99US-0145145P.
PR 23-JUL-1999; 99US-0145218P.
PR 23-JUL-1999; 99US-0145224P.
PR 26-JUL-1999; 99US-0145276P.
PR 27-JUL-1999; 99US-0145913P.
PR 27-JUL-1999; 99US-0145918P.
PR 27-JUL-1999; 99US-0145919P.
PR 28-JUL-1999; 99US-0145951P.
PR 02-AUG-1999; 99US-0146386P.
PR 02-AUG-1999; 99US-0146388P.
PR 02-AUG-1999; 99US-0146389P.
PR 03-AUG-1999; 99US-0147038P.
PR 04-AUG-1999; 99US-0147204P.
PR 04-AUG-1999; 99US-0147302P.
PR 05-AUG-1999; 99US-0147192P.
PR 05-AUG-1999; 99US-0147260P.
PR 06-AUG-1999; 99US-0147303P.
PR 06-AUG-1999; 99US-0147416P.
PR 09-AUG-1999; 99US-0147493P.
PR 09-AUG-1999; 99US-0147935P.
PR 10-AUG-1999; 99US-0148171P.
PR 11-AUG-1999; 99US-0148319P.
PR 12-AUG-1999; 99US-0148341P.
PR 13-AUG-1999; 99US-0148565P.
PR 13-AUG-1999; 99US-0148684P.
PR 16-AUG-1999; 99US-0149368P.
PR 17-AUG-1999; 99US-0149175P.
PR 18-AUG-1999; 99US-0149426P.
PR 20-AUG-1999; 99US-0149722P.
PR 20-AUG-1999; 99US-0149723P.
PR 20-AUG-1999; 99US-0149929P.
PR 23-AUG-1999; 99US-0149902P.
PR 23-AUG-1999; 99US-0149930P.
PR 25-AUG-1999; 99US-0150566P.
PR 26-AUG-1999; 99US-0150884P.
PR 27-AUG-1999; 99US-0151065P.
PR 27-AUG-1999; 99US-0151066P.
PR 27-AUG-1999; 99US-0151080P.
PR 30-AUG-1999; 99US-0151303P.
PR 31-AUG-1999; 99US-0151438P.
PR 01-SEP-1999; 99US-0151930P.
PR 07-SEP-1999; 99US-0152363P.
PR 10-SEP-1999; 99US-0153070P.
PR 13-SEP-1999; 99US-0153758P.
PR 15-SEP-1999; 99US-0154018P.
PR 16-SEP-1999; 99US-0154039P.
PR 20-SEP-1999; 99US-0154779P.
PR 22-SEP-1999; 99US-0155139P.
PR 23-SEP-1999; 99US-0155486P.
PR 24-SEP-1999; 99US-0155659P.
PR 28-SEP-1999; 99US-0156458P.
PR 29-SEP-1999; 99US-0156596P.
PR 04-OCT-1999; 99US-0157117P.
PR 05-OCT-1999; 99US-0157753P.
PR 06-OCT-1999; 99US-0157865P.
PR 07-OCT-1999; 99US-0158029P.
PR 08-OCT-1999; 99US-0158232P.
PR 12-OCT-1999; 99US-0158369P.
PR 13-OCT-1999; 99US-0159293P.
PR 13-OCT-1999; 99US-0159294P.
PR 13-OCT-1999; 99US-0159295P.
PR 14-OCT-1999; 99US-0159329P.
PR 14-OCT-1999; 99US-0159330P.
PR 14-OCT-1999; 99US-0159331P.
PR 14-OCT-1999; 99US-0159637P.
PR 14-OCT-1999; 99US-0159638P.
PR 18-OCT-1999; 99US-0159584P.
PR 21-OCT-1999; 99US-0160741P.
PR 21-OCT-1999; 99US-0160767P.
PR 21-OCT-1999; 99US-0160768P.
PR 21-OCT-1999; 99US-0160770P.
PR 21-OCT-1999; 99US-0160814P.
PR 21-OCT-1999; 99US-0160815P.
PR 22-OCT-1999; 99US-0160980P.
PR 22-OCT-1999; 99US-0160981P.
PR 22-OCT-1999; 99US-0160989P.
PR 25-OCT-1999; 99US-0161404P.
PR 25-OCT-1999; 99US-0161405P.
PR 25-OCT-1999; 99US-0161406P.
PR 26-OCT-1999; 99US-0161359P.
PR 26-OCT-1999; 99US-0161360P.
PR 26-OCT-1999; 99US-0161361P.
PR 28-OCT-1999; 99US-0161920P.
PR 28-OCT-1999; 99US-0161992P.
PR 28-OCT-1999; 99US-0161993P.
PR 29-OCT-1999; 99US-0162142P.

Query Match 9.8%; Score 277.5; DB 3; Length 256;
Best Local Similarity 33.7%; Pred. No. 1.6e-18;
Matches 88; Conservative 32; Mismatches 94; Indels 47; Gaps 11;

```
Qy        319 FISSVQKVF----QVVESTRPGKKVWLGETSSAYGGGAPLLSDTFAAGFMWLDKLGLSAR 374
              ::| | | |    | ::   |    |:||:  || |   :||||   | :||:||:|||
Db          5 YLSQVSKTFKDVNQTIQEHGPWASPWVGESGGAYNSGGRHVSDTFIDSFWYLDQLGMSAR 64

Qy        375 MGIEVVMRQVFFGAGNYHLVDE-NFDPLPDYWLSLLFKKLVGTKVLMASVQGSKRRKLRV 433
                :|  ||   | | | |:::  | | |||: :||: :|:|  ||     |    :|||
Db         65 HNTKVYCRQTLVG-GFYGLLEKGTFVPNPDYYSALLWHRLMGKGVLAVQTDGPP--QLRV 121

Qy        434 YLHCTNTDNPRYKEGDLTLYAINLHNVTKYL----------------------RLPYPF 470
              | ||:           :||  ||| | : :                        |  ||
Db        122 YAHCSK------GRAGVTLLLINLSNQSDFTVSVSNGINVVLNAESRKKKSLLDTLKRPF 175

Qy        471 S---NKQVDKYLLRP---LGPHG--LLSKSVQLNGLTLKMVDDQTLPPLMEKPLRP-GSS 521
              |   :|  | || |    | |    | ||:: ||| :||      :| | |  ||   |
Db        176 SWIGSKASDGYLNREEYHLTPENGVLRSKTMFLNGKSLKPTATGDIPSL-EPVLRSVNSP 234

Qy        522 LGLPAFSYSFFVIRNAKVAAC 542
              | :   | || |: |   :||
Db        235 LNVLPLSMSFIVLPNFDASAC 255
```

RESULT 50
AAM24147
ID AAM24147 standard; protein; 262 AA.
XX
AC AAM24147;
XX
DT 12-OCT-2001 (first entry)
XX
DE Human EST encoded protein SEQ ID NO: 1672.
XX
KW Human; sheep; pig; cow; fruit fly; yeast; hamster; macaque; horse;
KW tomato; monkey; dog; sea urchin; expressed sequence tag; EST;
KW diagnostics; forensic test; gene mapping; genetic disorder; biodiversity;
KW gene therapy; nutrition.
XX
OS Homo sapiens.
XX
PN WO200154477-A2.
XX
PD 02-AUG-2001.
XX
PF 25-JAN-2001; 2001WO-US002687.
XX
PR 25-JAN-2000; 2000US-00491404.
PR 17-JUL-2000; 2000US-00617746.
PR 03-AUG-2000; 2000US-00631451.
PR 15-SEP-2000; 2000US-00663870.
XX

PA (HYSE-) HYSEQ INC.
XX
PI Tang YT, Liu C, Zhou P, Qian XB, Wang Z, Chen R, Asundi V;
PI Cao Y, Drmanac RA, Zhang J, Werhman T;
XX
DR WPI; 2001-476164/51.
DR N-PSDB; AAH98806.
XX
PT Isolated polypeptide for treatment of diseases, diagnostics, raising
PT antibodies and research use.
XX
PS Claim 20; Page 1122-1123; 1275pp; English.
XX
CC The present invention provides the protein and coding sequences of novel
CC proteins from a variety of organisms, including human, dog, cat, horse,
CC cow, pig, hamster, monkey, macaque, yeast, bacteria, fruit fly, sea
CC urchin and tomato. These were derived from expressed sequence tags (ESTs)
CC from the organism of interest. They can be used in diagnostics,
CC forensics, gene mapping, identification of mutations, to assess
CC biodiversity and for nutritional purposes. The present sequence is a
CC protein of the invention
XX
SQ Sequence 262 AA;

Query Match 9.2%; Score 261; DB 4; Length 262;
Best Local Similarity 27.6%; Pred. No. 7.2e-17;
Matches 83; Conservative 38; Mismatches 80; Indels 100; Gaps 9;

```
Qy         20 PLGPLSPGAL------------------PRPA------QAQDVVDLDFFTQEPLHLVSPS 55
              |   |:||||                  | |       : : :: ||  |: |:  |: :
Db         18 PPACLAPGALYLALLLHLSLSSQAGDRRPLPVDRAAGLKEKTLILLDVSTKNPVRTVNEN 77

Qy         56 FLSVTIDANLATDPRFLILLGSPKLRTLARGLSPAYLRFGGTKTDFLIF----DPKKEST 111
              |||: :| ::  |  :|  | | :| |||||||||:||||| :|||| |    :| |
Db         78 FLSLQLDPSIIHD-GWLDFLSSKRLVTLARGLSPAFLRFGGKRTDFLQFQNLRNPAKSRG 136

Qy        112 FEERSYWQSQVNQDI------------CKYGSIPPDVEEKLRLEWPYQEQLLLREHYQKK 159
                 |:      ||             ||    |  : |  | :      :||:| :
Db        137 GPGPDYYLKNYEDDIVRSDVALDKQKGCKIAQHPDGMLEPPREKAAQMHLVLLKEQF--- 193

Qy        160 FKNSTYSRSSVDVLYTFANCSGLDLIFGLNALLRTADLQWNSSNAQLLLDYCSSKGYNIS 219
              ::|||                       | :|
Db        194 --SNTYS---------------------NLIL-------------------------- 202

Qy        220 WELGNEPNSFLKKADIFINGSQLGEDYIQLHKLLRK-STFKNAKLYGPDVGQPRRKTAKM 278
                  |||::       :||||||:|||||  ||:    :  | ||||:: :||:    :
Db        203 ----TEPNNYRTMHGRAVNGSQLGKDYIQLKSLLQPIRIYSRASLYGPNIVRPRKNVIAL 258

Qy        279 L 279
              |
Db        259 L 259
```

Search completed: September 1, 2004, 18:45:29
Job time : 142 secs